



## ROTATING UNIONS

For Machine Tools, Machining Centers and Transfer Lines

# 4 STEPS TO FINDING THE CORRECT UNION SERIES FOR YOUR MACHINE TOOL APPLICATION

- 1** Does the machine have a single supply connection (for example, coolant) or multiple connections (such as a combination of coolant, air, and hydraulic oil)?
- 2** What fluid or fluids must be transferred by the rotating union?
- 3** What is the maximum pressure required?
- 4** What is the maximum spindle speed required?

| 1<br>Number of Inputs | 2<br>Fluid(s) to Transfer                                     | 3<br>Maximum Pressure     | 4 Maximum Speed (rpm)  |                                      |                     |   |                     |  |
|-----------------------|---|---------------------------|--|--------------------------------------|---------------------|---|---------------------|--|
|                       |   |                           | up to 10K  | up to 15K                            | up to 20K           | up to 36K   | over 36K            |  |
| Single                | Coolant or MQL<br>(always present during rotation)            | up to 70 bar              | 1116 series (p.11)   | 1101 series (p.12)                   | 1108 series (p.13)  | 1117 series (p. 21), Multi-spindle unions (p. 22) |                     |  |
|                       |   | up to 140 bar             |  |                                      |                     |   |                     |  |
|                       | Coolant or MQL<br>(rotation with no coolant is possible)      | up to 70 bar              | 902 series (p.15)  | 1109 series (p.16, 17)               |                     |   |                     |  |
|                       |   | up to 140 bar             | 1121, 1129 and 1151 series (p. 23-25)                                |                                      |                     |   |                     |  |
|                       | Air + Coolant/MQL<br>(rotation with air pressure is possible) | up to 140 bar             | 1114 series (p.18, 19)   |                                      |                     |   | 1154 series (p. 26) |  |
|                       | Air only  | up to 10 bar              | 1115 series (p. 20)  | 1129 series (p. 25)                  |                     |   |                     |  |
| Hydraulic Oil         | up to 70 bar  | 1005 series (p.14)        | Contact <i>DEUBLIN</i>   |                                      |                     |   |                     |  |
| Multiple              | Hydraulic Oil + Hydraulic Oil                                 | up to 100 bar             | 2620-00x-xxx (p. 28)   |                                      |                     | Contact <i>DEUBLIN</i>                            |                     |  |
|                       |   | up to 140 bar             | 2620-04x-xxx (p. 29)   |                                      |                     |   |                     |  |
|                       | Hydraulic Oil + Air   | up to 70 bar              | 2620-30x-xxx<br>2620-32x-xxx<br>2620-10x-xxx<br>2620-12x-xxx (p. 28) | 2620-34x-xxx<br>2620-36x-xxx (p. 29) |                     |   |                     |  |
|                       |   |                           | up to 140 bar  | 2620-14x-xxx<br>2620-16x-xxx (p. 29) |                     |   |                     |  |
|                       | Coolant or MQL + Air  | up to 70 bar              | 2620-40x-xxx<br>2620-42x-xxx<br>2620-20x-xxx<br>2620-22x-xxx (p. 28) | 2620-44x-xxx<br>2620-46x-xxx (p.29)  | 1139 series (p. 27) |   |                     |  |
|                       |   |                           | up to 140 bar  | 2620-24x-xxx<br>2620-26x-xxx (p.29)  |                     |   |                     |  |
|                       | Coolant + Hydraulic Oil<br>(with no interpassage leakage)     | up to 140 bar             | 2630-1xx-xxx (p. 30)   | Contact <i>DEUBLIN</i>               |                     |   |                     |  |
|                       | Air + Air   | up to 10 bar              | 2620-5xx-xxx (p.28)  |                                      |                     |   |                     |  |
|                       | Coolant + Oil + Air   | up to 140 bar             | 2630, 2640, 2650 series (p.30)                                       |                                      |                     |   |                     |  |
|                       | Air + Oil   | up to 60 bar<br>≤ 250 rpm | 1379 & 1479 series (p.31)  |                                      |                     |   |                     |  |

Bearing-supported (one-piece) unions
  Bearingless (two-piece) unions
  Multi-passage unions

## HOW TO GET THE MOST VALUE FROM THIS CATALOG

If you are less familiar with machine tool applications of rotating unions, or if you would like a quick review, please read the “Information” sections first. These sections contain important details about designing, installing, and using rotating unions in machine tools.

If you understand the principles of designing machines to use rotating unions completely, please use either the Selection Chart on the inside cover or Table of Contents to find the appropriate product page. These pages contain dimensions, performance data, and other necessary application information.

If you don't see what you need, please contact your local DEUBLIN office directly. Telephone, email, and address information are shown on the back cover of this catalog. Unions in this catalog are representative of most common applications, but other variations are available. DEUBLIN can customize the interface between machine and union, such as hose connections or rotor threading, to your specifications. Also, DEUBLIN easily can develop complete unions to meet special pressure, speed, or media requirements.

*“If you don't see it, we probably have it.  
If we don't have it, we can create it.”*



DEUBLIN 1109 on vertical machining center

## TABLE OF CONTENTS

### Information for Designers of Machine Tools

|   |     |
|---|-----|
| Operating Principles of Rotating Unions.....                  | 4   |
| Selecting the Right Rotating Union for Your Application ..... | 5-6 |
| Mounting Tolerances .....                                     | 7   |
| Drain and Supply Connections .....                            | 8   |

### Information for Users of Machine Tools

|  |    |
|--|----|
| Installation Techniques .....            | 9  |
| Coolant Filtration and Maintenance ..... | 10 |
| Thread Equivalence .....                 | 10 |

### Bearing-Supported Unions

|   |       |
|---|-------|
| “Closed Seal” Designs – when media is always present during rotation                    |       |
| 1116, 1101, 1108, 1005.....   | 11-14 |
| Pop-Off™ Designs – when rotation without media is possible                              |       |
| 902, 1109.....  | 15-17 |
| AutoSense™ Designs – when both coolant and pressurized dry air are used interchangeably |       |
| 1114.....   | 18-19 |
| “Controlled Leakage” Designs – for unlimited operation with pressurized dry air         |       |
| 1115, 7000.....   | 20    |

### Bearingless Unions

|   |       |
|---|-------|
| “Closed Seal” Designs – when media is always present during rotation                    |       |
| 1117.....   | 21    |
| Compact unions for multi-spindle applications.....                                      | 22    |
| Pop-Off™ Designs – when rotation without media is possible                              |       |
| 1121, 1129.....   | 23-25 |
| “Controlled Leakage” Designs – for unlimited operation with pressurized dry air         |       |
| 1129.....   | 25    |
| AutoSense™ Designs – when both coolant and pressurized dry air are used interchangeably |       |
| 1154.....   | 26    |
| “All-Media” Designs   |       |
| 1139.....   | 27    |

### Multi-Passage Unions

|   |       |
|---|-------|
| 2-pass design for various media combinations                  |       |
| 2620.....   | 28-29 |
| 3-pass design to 5-pass design for various media combinations |       |
| 2630, 2640, 2650.....   | 30    |
| 1379, 1479.....   | 31    |
| Special designs for MQL mixed in the spindle                  |       |
| 1112-100-101, 1122-923-852.....                               | 32    |

### General Information

|   |            |
|---|------------|
| Warranty and other important information .....            | 33         |
| Getting technical or design assistance from DEUBLIN ..... | 34         |
| Ordering check list.....                                  | 35         |
| DEUBLIN offices and contact information .....             | Back Cover |



# INFORMATION FOR DESIGNERS OF MACHINE TOOLS

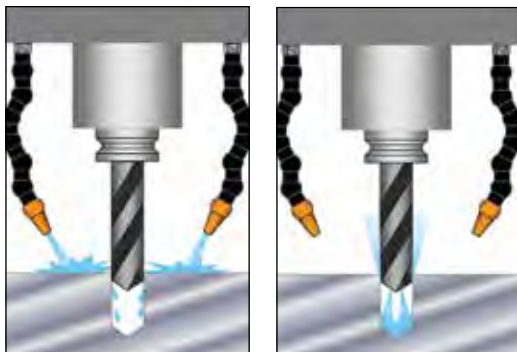
## OPERATING PRINCIPLES OF ROTATING UNIONS

### Advantage of Through-Spindle Coolant (TSC)

Nearly all modern machine tools and machining centers are equipped with so-called “flood coolant”. High-speed cutting tools require both cooling and lubrication to reduce the rate of tool wear and to prevent overheating, which degrade the tool’s strength. Flood coolant systems spray coolant fluid onto the work piece near the cutting tool. But for many machining operations, such as milling or hole drilling, these systems are less effective at getting coolant fluid to the cutting edge.

Without coolant, the flutes of the cutting tool can become packed with chips and the cutting edge loses hardness due to overheating. This leads to excessive wear and short tool life. Poor chip removal also can cause a poor surface finish on the work piece.

In machining centers with through-spindle coolant (TSC), coolant fluid is conducted directly through the cutting tool to cool the cutting edge, reduce friction, and remove chips. Coolant flows axially through a rotating union into the spindle and tool holder directly to the heat source. Compared to flood coolant systems, TSC pays for itself in terms of lower operating costs for tools and coolant. Better control of tool overheating also allows faster feed rates and higher productivity.



Flood Coolant

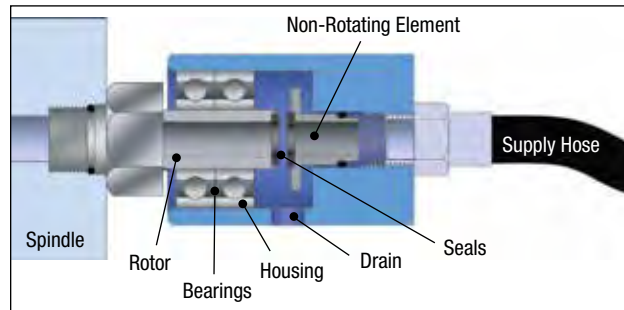
Through-Spindle Coolant

### How Rotating Unions Work

A rotating union is a precision mechanical device used to transfer coolant fluid or media from a stationary source, such as a pump, into a rotating device, such as a spindle with cutting tool. The typical coolant fluid is water-based, consisting of approximately 85-95% water for cooling, 2-12% oil for lubricating the cutting edge, and a small amount of other chemicals for keeping the water and oil mixed and for other purposes. *DEUBLIN* Rotating Unions also can transfer air/oil mist, known as Minimum Quantity Lubrication (MQL), cutting oils, and even dry air. The exact capabilities vary by model number, so please consult the product pages of this catalog for details.

In certain machine tool applications, rotating unions also are used to transfer hydraulic fluid or air for clamping or sensing.

### Parts of a Rotating Union



As shown in the picture above, a typical rotating union consists of a rotor that spins at the same speed as the machine tool spindle, a non-rotating element that closes precisely against the rotor, a housing that connects the supply hose to the non-rotating element, and seals that contain the coolant fluid. Bearing-supported unions connect the rotor to the housing with one or more bearings. Bearingless unions omit these bearings. Depending on the application, the housing may have one or more drain connections.

Seals are the heart of the rotating union. They must contain very high pressures while rotating at very high speeds. At 20,000 rpm, for example, the seals of a *DEUBLIN* 1129 series coolant union are moving at a relative speed of nearly 16 feet per second (5 meters per second), while containing 2030 psi (140 bar) of fluid pressure!



Micro-lapped *DEUBLIN* seal

For positive sealing, smooth rotation, and long service life, all *DEUBLIN* seals are micro-lapped with proprietary machines and compounds to achieve an optical flatness of 2 light bands (23 millionths of an inch, or 0.58 microns). In addition, all *DEUBLIN* coolant unions use seals made from special grades of silicon carbide. *DEUBLIN* seals therefore have superior resistance to wear and heat accumulation, compared to lesser materials.

Finally, *DEUBLIN* Rotating Unions are designed with balanced mechanical seals. With this technology, seal contact pressure and thrust load on the spindle are minimized, regardless of operating pressure. This reduces seal wear even further, resulting in longer life and more reliable performance.

***DEUBLIN* Balanced Mechanical Seal**  
Partial line pressure is applied to seal face.



# INFORMATION FOR DESIGNERS OF MACHINE TOOLS

## SELECTING THE RIGHT UNION FOR YOUR APPLICATION

### Bearing-supported Rotor-mounted



Example: DEUBLIN 1109 series

### Bearing-supported Bore-mounted



Example: DEUBLIN 1109 series

### Bearingless



Example: DEUBLIN 1129 series

## Bearing or Bearingless?

Rotating unions for machine tool applications are available in bearing-supported and bearingless configurations. Each kind has advantages and disadvantages for the machine tool designer.

**Bearing-supported unions** are easy to install and replace, because of their one-piece design. DEUBLIN makes two different mounting styles. The **rotor-mounted** style attaches to the machining center with a threaded rotor. The **bore-mounted** style slides into a precisely machined counterbore at the end of the spindle. A second advantage of both styles is that any leakage is channeled by the housing into a drain line. A third advantage is that rotor-mounted, bearing-supported unions absorb nearly all axial forces (thrust load) on the spindle caused by coolant pressure. For both bore-mounted and bearingless unions, however, coolant pressure creates a certain thrust load on the spindle.

**Bearingless unions** provide the machine tool designer with several advantages. First, eliminating bearings reduces cost while allowing an increase in maximum rpm. Second, since only a small rotor is directly attached to the spindle, there is no possibility for the union's housing to be a source of vibration. Third, without bearings the union is immune to side loading from, for example, too much tension in the coolant supply hose. Fourth, bearingless unions can be very small, ideal for applications with multiple, closely spaced spindles. However, bearingless unions must be installed in two pieces – the rotor and a small housing containing the non-rotating element and connection to the coolant supply. So, during installation, the micro-lapped seal faces are exposed and must be handled carefully.



DEUBLIN 1116 Bearing-Supported Unions on Automotive Transfer Line



DEUBLIN 1117 Bearingless Unions on Automotive Transfer Line

# INFORMATION FOR DESIGNERS OF MACHINE TOOLS

## SELECTING THE RIGHT UNION FOR YOUR APPLICATION

### Which **DEUBLIN®** Seal Technology?

**DEUBLIN** offers **five** different seal technologies, in order to provide the best solution for every machining application. Only **DEUBLIN** can offer such flexibility to the machine tool designer.

**Closed Seal:** As the name indicates, the seals stay closed with or without coolant pressure. Therefore, drain lines generally are not required. However, all rotating unions operate with a thin film of media between the seals. Over time, small, nearly invisible quantities of media can migrate across the seal faces. Therefore, proper venting provisions should be made. Closed seal unions generally are less affected by extremely contaminated coolant than other designs. However, closed seal unions should not be rotated for an extended time if coolant fluid is not present.

**Controlled Leakage:** The opposite of closed seals, controlled leakage seals always have a small gap between the seals, even when pressure is applied. For this reason, controlled leakage unions are excellent for high-speed applications with pressurized dry air. Controlled leakage unions generally are not suitable for coolant fluid applications.

**Pop-Off™:** This kind of seal closes only when pressure is applied. When pressure is removed, the seal faces separate by a very small distance. This eliminates friction and seal wear during operation without coolant, and therefore allows unlimited “dry running” at high speeds. Pop-Off™ designs should be considered when machining will occur with and without through-spindle

coolant (TSC). Because the seals separate during tool changes when coolant pressure is off, residual coolant in the supply hose and spindle can drain through the seal faces. Therefore, a Pop-Off™ union generally requires a downward-pointing drain line to direct such residual coolant into the sump. Also note that Pop-Off™ unions are not intended for extended operation with pressurized dry air.

**AutoSense™:** The latest in a series of **DEUBLIN** innovations, this technology combines the best features of Pop-Off™ and controlled leakage designs. Like Pop-Off™ designs, AutoSense™ seals close when coolant pressure is applied to contain the coolant fluid, and “pop” apart in the absence of coolant pressure to allow unlimited dry running. Like controlled leakage designs, AutoSense™ seals handle pressurized dry air by creating a microscopic gap between the seal faces. AutoSense™ unions handle coolant, MQL, and dry air by sensing the kind of media and automatically changing seal operation in response. As with Pop-Off™ seals, a drain line generally is required.

**All-Media:** This technology gives the machine designer complete control over seal opening and closing. By controlling how the pressure is applied to the union’s multiple connections, the machine designer can cause the seals to separate when necessary (for example, to transfer pressurized dry air) or close when appropriate (to transfer coolant fluid or oil mist). A drain line generally is required.

The table below summarizes the operation of each seal technology with different media.

| Media           | Seal Technology  |   |                            |                                   |   |
|-----------------|--|---|----------------------------|-----------------------------------|---|
|                 | Closed Seal<br>(1005, 1101,1108,<br>1116, 1117 Series) | Pop-Off™<br>(902, 1109,<br>1121,1129 Series)    | All-Media<br>(1139 Series) | AutoSense™<br>(1114, 1154 Series) | Controlled Leakage<br>(1115, 7000 Series) |
| No pressure     | Not recommended with rotation                          | Seals open automatically to prevent dry running |                            |                                   |   |
| Pressurized air |  | Micro-gap between seals to prevent dry running  |                            |                                   |   |
| MQL             | Seals are closed                                       |   |                            |                                   |   |
| Coolant         |  |   |                            |                                   |   |

*DEUBLIN engineers can help you choose the best technology for your application.*





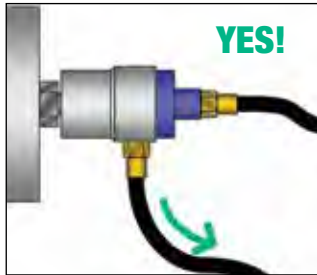
# INFORMATION FOR DESIGNERS OF MACHINE TOOLS

## DRAIN AND SUPPLY HOSE CONNECTIONS

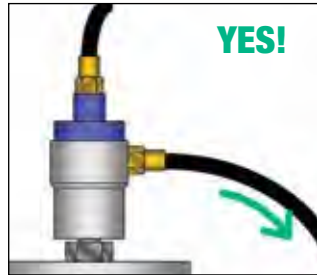
### Drain Connection

All unions, even closed-seal designs, can experience migration of minimal amounts of media across the seal faces. Such media migration keeps the seals well lubricated and avoids the permanent seal damage that comes from dry running. In addition, even the best unions eventually will need replacement. Therefore, the machine tool designer should provide adequate drainage to prevent costly spindle damage.

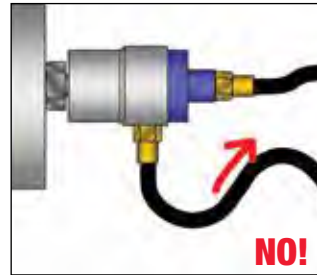
*DEUBLIN* designs are very advanced, but even *DEUBLIN* must obey the law of gravity! Therefore, it is critical that all drainage hoses and paths slope downward continuously, as shown in the diagrams to the right.



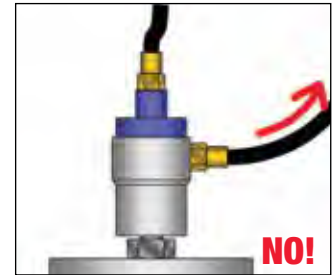
Drain hose always slopes downward



Drain hose always slopes downward



Part of drain hose slopes up



Drain hose slopes up from union

### Supply Connection

*DEUBLIN* Pop-Off™, AutoSense™, and All-Media unions offer unlimited “dry running” at high speeds. By allowing the seal faces to separate when coolant pressure is removed, seal wear during unpressurized operation is completely eliminated. One consequence is that the seals separate during tool changes,

allowing residual coolant in the supply hose and spindle to drain through the seal faces. Careful orientation of the coolant supply hose can dramatically reduce this effect, as shown in the diagrams below.

#### Supply Hose Slopes Down From Union



Tool change with vertical spindle

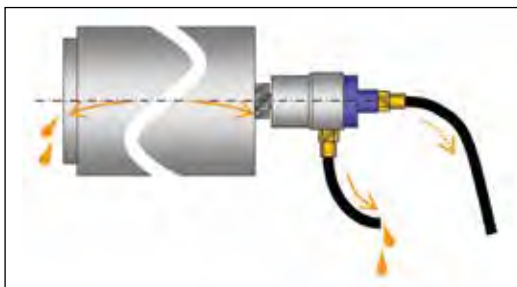
When the supply line runs down from the rotating union, any coolant between union and control valve will remain in the hose during tool change. This reduces the amount of drainage from both the spindle nose and the union drain line.

#### Supply Hose Slopes Up From Union

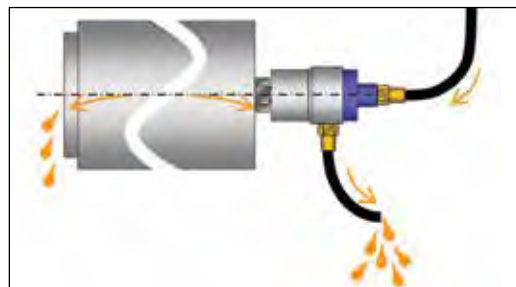


Tool change with vertical spindle

When the supply line runs up from the rotating union, any coolant between union and control valve will flow down during tool change. This increases the amount of drainage from both the spindle nose and the union drain line.



Tool change with horizontal spindle



Tool change with horizontal spindle



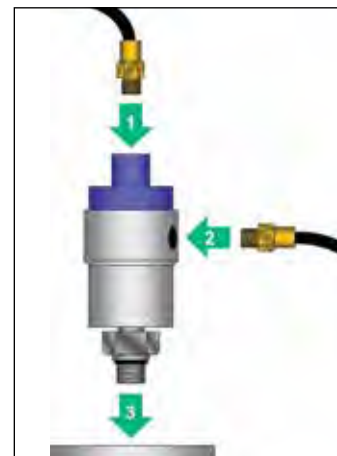
# INFORMATION FOR USERS OF MACHINE TOOLS

## INSTALLATION TECHNIQUES

Installing a *DEUBLIN* Rotating Union is as easy as 1-2-3. For maximum life and reliability, maintenance engineers and service technicians need only to follow a few simple rules.

1. For bearing-supported, rotor-mounted unions, connect both supply and drain hoses to the union before mounting the union on the spindle. Otherwise, bearings in the union may become brinnelled or galled when the hose connections are tightened.
2. Clean the mounting surfaces of the spindle thoroughly before mounting the union. The spindle pilot must be clean, with no chips, no burrs, and no dents. Otherwise, the union may exhibit runout and vibrate during rotation.
3. Make sure the drain hose runs downward continuously, with no “roller coaster” rises that could prevent proper drainage. If the spindle is horizontal, make sure that the union’s drain hole is at 6 o’clock, pointing directly down. unions can do many things, but they can’t break the law of gravity!

Following are examples of correct and incorrect installations, with an explanation of what is correct or incorrect about each example.



### Examples of CORRECT Installations



**WHAT'S RIGHT:** Elbow fitting is used to avoid a tight bend in supply hose. Drain hose slopes downward.



**WHAT'S RIGHT:** Flexible hose between rigid supply pipe and union. Drain hose runs straight down.



**WHAT'S RIGHT:** Flexible hose between rigid supply pipe and union. Drain hose runs straight down.



**WHAT'S RIGHT:** Elbow prevents excessive side load on bearings when supply hose is pressurized.

### Examples of INCORRECT Installations



**WHAT'S WRONG:** Drain line points up, which can flood the union's bearings.



**WHAT'S WRONG:** Union points up. Coolant contaminants will collect at the bottom and interfere with proper sealing.



**WHAT'S WRONG:** Union housing is rigidly attached to the spindle. Without 100% perfect alignment, this creates a side load leading to early bearing failure.



**WHAT'S WRONG:** Bend in supply hose is too tight. When pressurized, the supply hose may create a large side load on the union's bearings.

# INFORMATION FOR USERS OF MACHINE TOOLS

## COOLANT FILTRATION AND MAINTENANCE

*DEUBLIN* unions are designed to handle the various coolant contaminants found in most manufacturing facilities. To ensure long union life and maximum productivity, however, coolant filtration should conform to ISO 4406:1999 Code 17/15/12, SAE 749 Class 5, or NAS 1638 Class 8, with a maximum particle size of 60 microns. For comparison, pumps (both fixed piston and variable volume) such as those used in coolant systems typically require ISO 4406 Code 16/14/11 or better – in other words, half as much contamination as *DEUBLIN*.

Only pure water should be used to make up for coolant evaporation. Calcium and magnesium salts in most tap water shorten coolant life, by depleting the chemicals in the coolant, by breaking down the water-oil emulsion, and by encouraging bacterial growth. These salts also can cause residue to build up

inside the rotating union, leading to premature failure. One rule of thumb is that each additional “grain of hardness” (equivalent to 17 ppm or 17 mg/l of calcium carbonate) increases your annual coolant consumption by one percent. Proper coolant maintenance also prolongs tool life and improves the surface finish of your parts.



**Unacceptable**  
(ISO 21/19/17 at 100x)



**Acceptable**  
(ISO 16/14/11 at 100x)

| ISO 4406:1999 Code 17/15/12 |                     |
|-----------------------------|---------------------|
| Particle size (µm)          | Particles per 100ml |
| 4 – 6                       | ≤ 130,000           |
| 6 – 14                      | ≤ 32,000            |
| 14 – 60                     | ≤ 4,000             |

| NAS 1638 Class 8   |                     |
|--------------------|---------------------|
| Particle size (µm) | Particles per 100ml |
| 5 – 15             | ≤ 64,000            |
| 15 – 25            | ≤ 11,400            |
| 25 – 50            | ≤ 2,025             |
| 50 – 60            | ≤ 360               |

| SAE 749-1963 Class 5 |                     |
|----------------------|---------------------|
| Particle size (µm)   | Particles per 100ml |
| 5 – 10               | ≤ 87,000            |
| 10 – 25              | ≤ 21,400            |
| 25 – 50              | ≤ 3,130             |
| 50 – 60              | ≤ 430               |

## THREAD EQUIVALENCE

**Parallel or “straight” threads** are indicated in this catalog by the symbol “G”. British Standard Parallel threads are known by several other names in different parts of the world. Common symbols for this thread style include: BSP, BSPP, BSSPI, BSPF, BSPG, PF, Rp, and G. British Standard parallel threads also may be referred to as British Gas, British Pipe Parallel or Parallel Fastening Thread. The reference standards are described in ISO 228/1 and JIS B0202.

American Standard Unified threads, indicated by UN or UNF, also are parallel. However, they are not the same as and do not mate with G threads, since the thread angle and shape are different.

**The following examples are equivalent parallel threads:**

G 1/4"  
G 1/4" cyl  
PF 1/4"  
R 1/4" Tr  
1/4" BSP

**Tapered threads** are indicated in this catalog by the symbols “PT” and “NPT”. British Standard Taper threads are known by several other names, including: BSPT, BSPT<sub>r</sub>, PS, PT, R, and Rc. British Standard taper threads also may be referred to as Pipe Taper or Conical Thread. The reference standards are described in ISO 7/1 and JIS B0203.

American Standard NPT threads also are tapered, but not the same as PT threads. Both the thread angle and shape are different, so mating NPT with PT may not create a reliable seal.

**The following examples are equivalent tapered threads:**

R 1/4" keg  
G 1/4" co  
PT 1/4"  
R 1/4"  
Rc 1/4"  
1/4" BSPT

# DEUBLIN

## 1116 Series "Closed Seal" Rotating Unions for Continuous Coolant Service

- Single passage for coolant or MQL
- Closed seals for transfer line and similar applications
- Full-flow design has no obstructions to trap chips or debris
- Bearing-supported with threaded rotor for easy installation
- Deep groove radial ball bearings for smooth operation
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

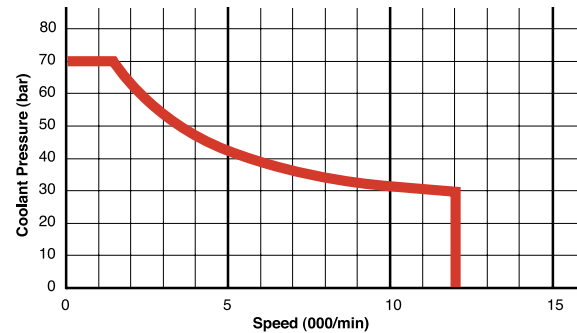


### Operating Data

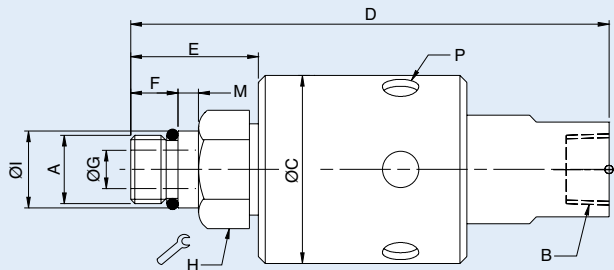
|                     |  |            |
|---------------------|--|------------|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |
| Filtration          | ISO 4406 Class 17/15/12,<br>max. 60 micron                   |            |
| Maximum Speed       | 12,000 min <sup>-1</sup>                                     | 12,000 rpm |
| Maximum Pressure    | 70 bar   | 1,015 psi  |
| Maximum Flow        | 82 l/min   | 21.6 gpm   |
| Maximum Temperature | 71°C   | 160°F      |



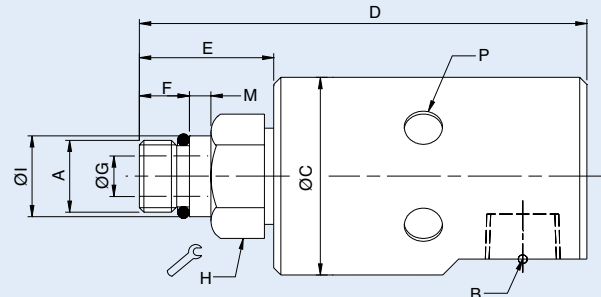
DO NOT RUN DRY



### Axial Connection



### Radial Connection



|                   | Ordering Number           | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size (6 X 60°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter  | M Pilot Length |
|-------------------|---------------------------|---------------------|--------------------|------------------|-----------------------|--------------------|----------------|-----------------|-----------------|----------------|-------------------|----------------|
| Axial Connection  | 1116-048-064              | 1/4" NPT            | 44                 | 115              | 9                     | 5/8"-18 UNF RH     | 33             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                   | 1116-048-463              | 1/4" NPT            | 44                 | 112              | 9                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|                   | 1116-485-463              | G 1/4"              | 44                 | 112              | 9                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|                   | 1116-580-343              | 3/8" PT             | 44                 | 112              | 9                     | M12 x 1.25 LH      | 30             | 11              | 6               | 24             | 13.994 / 13.989   | 5              |
|                   | 1116-600-059              | 3/8" NPT            | 44                 | 115              | 9                     | 5/8"-18 UNF LH     | 33             | 14              | 9               | 15/16"         | 0.6555" / 0.6550" | 5              |
|                   | 1116-600-463              | 3/8" NPT            | 44                 | 112              | 9                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|                   | 1116-610-463              | G 3/8"              | 44                 | 112              | 9                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
| Radial Connection | 1116-090-059              | 3/8" NPT            | 44                 | 106              | 9                     | 5/8"-18 UNF LH     | 33             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                   | 1116-090-064              | 3/8" NPT            | 44                 | 106              | 9                     | 5/8"-18 UNF RH     | 33             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                   | 1116-090-463              | 3/8" NPT            | 44                 | 102              | 9                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|                   | 1116-516-463 <sup>A</sup> | G 3/8"              | 44                 | 102              | 9                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|                   | 1116-555-463              | G 3/8"              | 44                 | 103              | 9                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |

Note A: Also suitable for Cutting Oil and Air.

This series includes additional models. For more information, contact **DEUBLIN** at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)

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## DEUBLIN

### 1101 Series "Closed Seal" Rotating Unions for Continuous Coolant Service

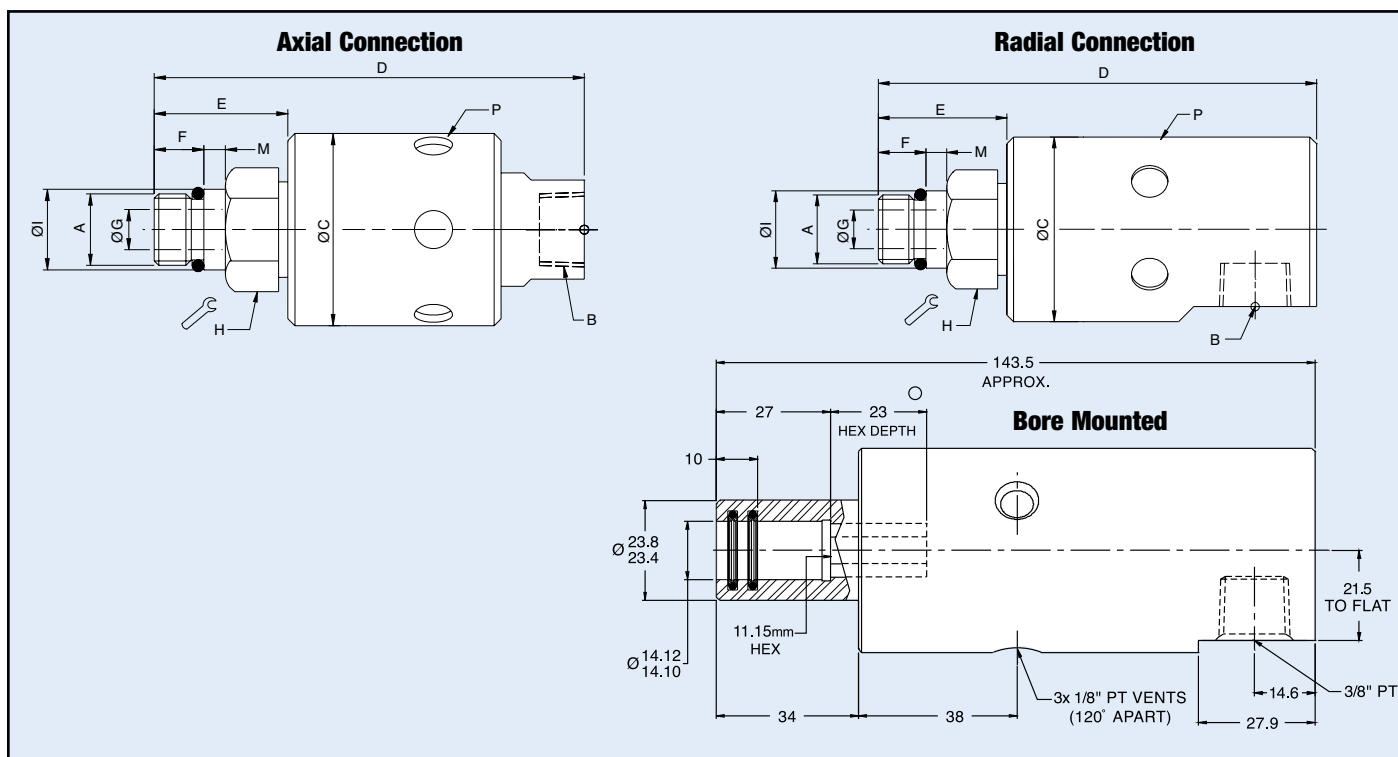
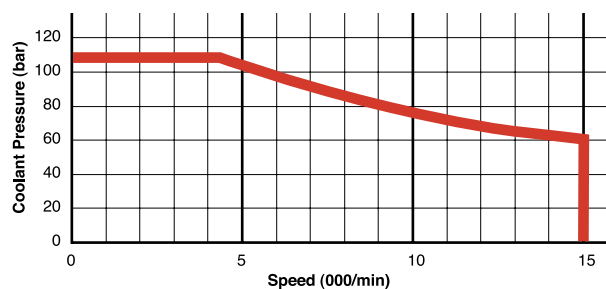
- Single passage for coolant or MQL
- Closed seals for transfer line and similar applications
- Full-flow design has no obstructions to trap chips or debris
- Bearing-supported with threaded rotor for easy installation
- Deep groove radial ball bearings for smooth operation
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum components resist corrosion

#### Operating Data

|                     |  |            |
|---------------------|--|------------|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |
| Filtration          | ISO 4406 Class 17/15/12,<br>max. 60 micron                   |            |
| Maximum Speed       | 15,000 min <sup>-1</sup>                                     | 15,000 rpm |
| Maximum Pressure    | 105 bar  | 1,520 psi  |
| Maximum Flow        | 20 l/min   | 5.3 gpm    |
| Maximum Temperature | 71°C   | 160°F      |



DO NOT RUN DRY



|                  | Ordering Number           | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size (6 X 60°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter  | M Pilot Length |
|------------------|---------------------------|---------------------|--------------------|------------------|-----------------------|--------------------|----------------|-----------------|-----------------|----------------|-------------------|----------------|
| Axial Connection | 1101-235-238              | 3/8" NPT            | 43                 | 100              | 9                     | 5/8"-18 UNF LH     | 33             | 14              | 6               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                  | 1101-235-239              | 3/8" NPT            | 43                 | 100              | 9                     | 5/8"-18 UNF RH     | 33             | 14              | 6               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                  | 1101-235-343              | 3/8" NPT            | 43                 | 96               | 9                     | M16 x 1.5 LH       | 30             | 11              | 6               | 24             | 17.993 / 17.988   | 5              |
|                  | 1101-235-424              | 3/8" NPT            | 43                 | 93               | 9                     | M10 x 1 LH         | 27             | 11              | 3.2             | 24             | 10.994 / 10.989   | 3              |
|                  | 1101-359-343              | G 3/8"              | 43                 | 96               | 9                     | M16 x 1.5 LH       | 30             | 11              | 6               | 24             | 17.993 / 17.988   | 5              |
|                  | 1101-620-343              | 3/8" NPT            | 43                 | 96               | 9                     | M16 x 1.5 LH       | 30             | 11              | 6               | 24             | 17.993 / 17.988   | 5              |
| Radial           | 1101-195-343              | G 3/8"              | 43                 | 97               | 9                     | M16 x 1.5 LH       | 30             | 11              | 6               | 24             | 17.993 / 17.988   | 5              |
|                  | 1101-615-598 <sup>A</sup> | 3/8" PT             | 49                 | 144              | 3 x 1/8" PT           | 14 mm female hex   | 34             | NA              | 6               | NA             | 14.122 / 14.097   | 27             |

Note A: This union is a bore-mounted design.

**This series includes additional models. For more information, contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)**



# DEUBLIN

## 1108 Series "Closed Seal" Rotating Unions for Continuous Coolant Service

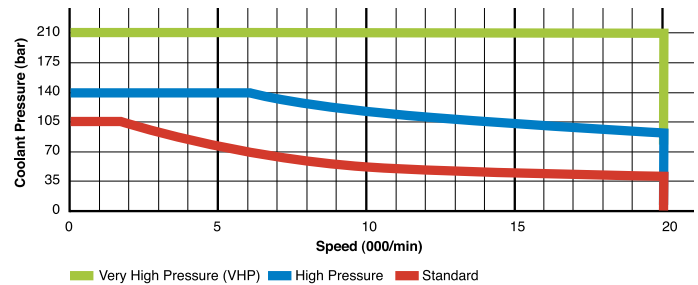
- Single passage for coolant or MQL
- Closed seals for transfer line and similar applications
- Full-flow design has no obstructions to trap chips or debris
- Bearing-supported with threaded rotor for easy installation
- Dual ABEC 7 (ISO class P4) angular contact ball bearings
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

### Operating Data

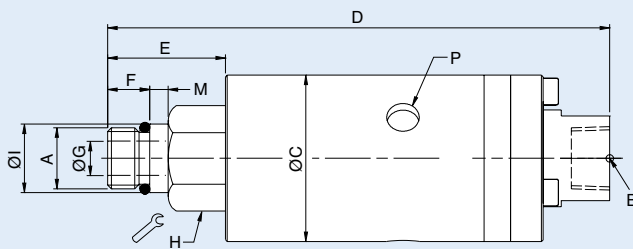
|                     |  |          |                          |
|---------------------|--|----------|--------------------------|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |          |                          |
| Filtration          | ISO 4406 Class 17/15/12, max. 60 micron                      |          |                          |
| Maximum Speed       | 20,000 min <sup>-1</sup> 20,000 rpm                          |          |                          |
| Maximum Pressure    | See chart  |          |                          |
| Maximum Flow        | 82 l/min   | 21.6 gpm | Standard                 |
|                     | 24.3 l/min   | 6.4 gpm  | High Pressure            |
|                     | 2.7 l/min  | 0.7 gpm  | Very High Pressure (VHP) |
| Maximum Temperature | 71°C   | 160°F    |                          |



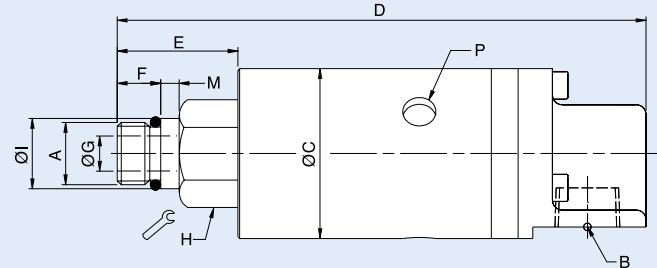
DO NOT RUN DRY



### Axial Connection



### Radial Connection



|               | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size (3 X 120°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter  | M Pilot Length |
|---------------|-----------------|---------------------|--------------------|------------------|------------------------|--------------------|----------------|-----------------|-----------------|----------------|-------------------|----------------|
| Standard      | 1108-002-102    | 3/8" NPT Axial      | 44                 | 132              | 9                      | 5/8"-18 UNF LH     | 34             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|               | 1108-002-153    | 3/8" NPT Axial      | 44                 | 132              | 9                      | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1108-032-153    | G 3/8" Axial        | 44                 | 129              | 9                      | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1108-001-102    | 3/8" NPT Radial     | 44                 | 138              | 9                      | 5/8"-18 UNF LH     | 34             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|               | 1108-001-153    | 3/8" NPT Radial     | 44                 | 135              | 9                      | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1108-011-153    | G 3/8" Radial       | 44                 | 135              | 9                      | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
| High Pressure | 1108-019-107    | 1/4" NPT Axial      | 44                 | 132              | 9                      | 5/8"-18 UNF LH     | 34             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|               | 1108-019-212    | 1/4" NPT Axial      | 44                 | 129              | 9                      | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1108-034-212    | G 1/4" Axial        | 53                 | 129              | G 1/4"                 | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1108-058-212    | G 1/4" Radial       | 53                 | 135              | G 1/4"                 | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
| VHP           | 1108-093-559    | 1/4" NPT Axial      | 44                 | 132              | 9                      | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1108-093-568    | 1/4" NPT Axial      | 44                 | 132              | 9                      | 5/8"-18 UNF LH     | 34             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |

This series includes additional models. For more information, contact **DEUBLIN** at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)

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## DEUBLIN

### 1005 Series “Closed Seal” Rotating Unions for Continuous Coolant Service

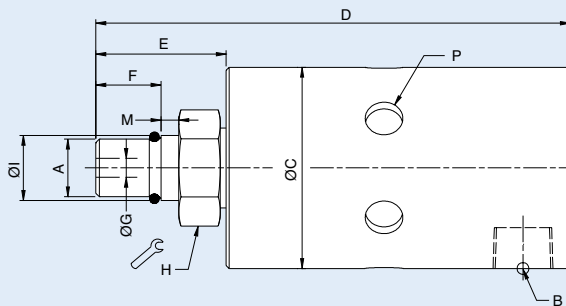
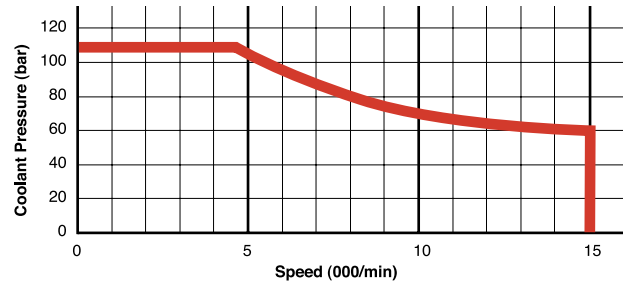
- Single passage for coolant or MQL
- Closed seals for transfer line and similar applications
- Full-flow design has no obstructions to trap chips or debris
- Bearing-supported with threaded rotor for easy installation
- Labyrinth system and vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized housing and stainless steel rotor resist corrosion

#### Operating Data

|                     |  |            |
|---------------------|--|------------|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |
| Filtration          | ISO 4406 Class 17/15/12,<br>max. 60 micron                   |            |
| Maximum Speed       | 15,000 min <sup>-1</sup>                                     | 15,000 rpm |
| Maximum Pressure    | 105 bar  | 1,520 psi  |
| Maximum Flow        | 6.7 l/min  | 1.8 gpm    |
| Maximum Temperature | 71°C   | 160°F      |



DO NOT RUN DRY



Other 1005 models are available for use with oil or dry air. Please refer to the **DEUBLIN** Engineering Catalog 2600.

|              | Ordering Number           | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size (6 X 60°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length |
|--------------|---------------------------|---------------------|--------------------|------------------|-----------------------|--------------------|----------------|-----------------|-----------------|----------------|------------------|----------------|
| Radial Conn. | 1005-402-401              | 1/8" NPT            | 34                 | 80               | 6.4                   | M10 x 1 RH         | 22             | 11              | 3.2             | 17             | 10.994 / 10.989  | 3              |
|              | 1005-402-448              | 1/8" NPT            | 34                 | 80               | 6.4                   | M10 x 1 LH         | 22             | 11              | 3.2             | 17             | 10.994 / 10.989  | 3              |
|              | 1005-633-401              | 1/8" NPT            | 34                 | 80               | 1 x M7                | M10 x 1 RH         | 22             | 11              | 3.2             | 17             | 10.994 / 10.989  | 3              |
|              | 1005-354-434 <sup>A</sup> | 1/8" NPT            | 34                 | 80               | 6.4                   | M10 x 1 RH         | 22             | 11              | 3.2             | 17             | 10.994 / 10.989  | 3              |

**Note A:** This union offers limited dry running capability.

**This series includes additional models. For more information, contact **DEUBLIN** at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)**



# DEUBLIN

## 902 Series Pop-Off™ Rotating Unions for Coolant Service with Dry Running

- Single passage for coolant or MQL
- Pop-Off™ technology allows unlimited dry running without media pressure
- Full-flow design has no obstructions to trap chips or debris
- Bearing-supported with threaded rotor for easy installation
- Deep groove radial ball bearings for smooth operation
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

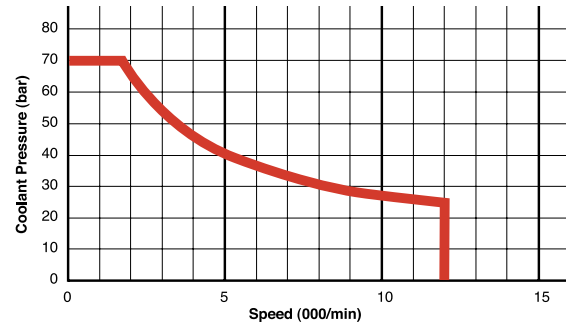


### Operating Data

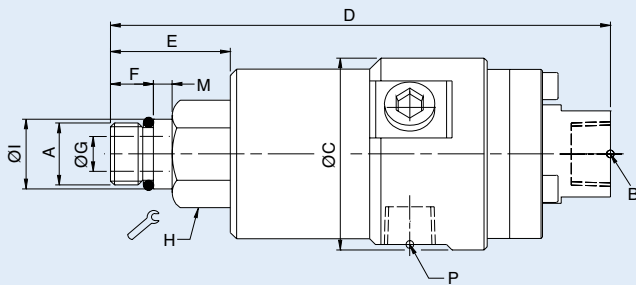
|                     |  |            |
|---------------------|--|------------|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |
| Filtration          | ISO 4406 Class 17/15/12,<br>max. 60 micron                   |            |
| Maximum Speed       | 12,000 min <sup>-1</sup>                                     | 12,000 rpm |
| Maximum Pressure    | 70 bar   | 1,015 psi  |
| Maximum Flow        | 82 l/min   | 21.6 gpm   |
| Maximum Temperature | 71°C   | 160°F      |



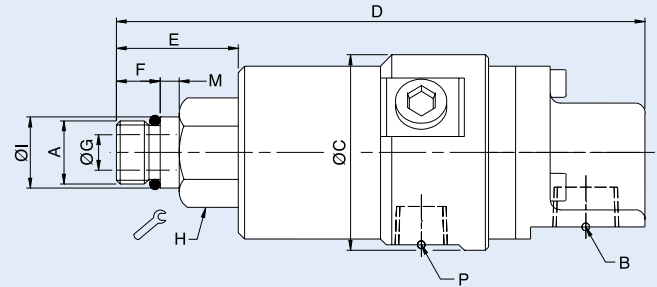
**NO AIR PRESSURE  
WITH ROTATION**



### Axial Connection



### Radial Connection



|                   | Ordering Number          | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size (3 X 120°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter  | M Pilot Length |
|-------------------|--------------------------|---------------------|--------------------|------------------|------------------------|--------------------|----------------|-----------------|-----------------|----------------|-------------------|----------------|
| Axial Connection  | 902-111-165              | 3/8" NPT            | 49.5               | 132              | 1/4" NPT               | 5/8"-18 UNF LH     | 36             | 15              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                   | 902-121-188              | G 3/8"              | 49.5               | 129              | G 1/4"                 | M16 x 1.5 LH       | 33             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|                   | 902-138-188              | G 3/8"              | 49.5               | 129              | G 1/4"                 | M16 x 1.5 LH       | 33             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|                   | 902-141-188              | 3/8" PT             | 49.5               | 129              | 1/4" PT                | M16 x 1.5 LH       | 33             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
| Radial Connection | 902-110-165              | 3/8" NPT            | 49.5               | 138              | 1/4" NPT               | 5/8"-18 UNF LH     | 36             | 15              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                   | 902-120-188              | G 3/8"              | 49.5               | 135              | G 1/4"                 | M16 x 1.5 LH       | 33             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|                   | 902-137-188              | G 3/8"              | 49.5               | 135              | G 1/4"                 | M16 x 1.5 LH       | 33             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|                   | 902-140-188              | 3/8" PT             | 49.5               | 135              | 1/4" PT                | M16 x 1.5 LH       | 33             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|                   | 902-225-101 <sup>A</sup> | G 3/8"              | 49.5               | 135              | G 1/4"                 | Two-Flat 12        | 26             | NA              | 9               | NA             | 11.984 / 11.966   | 16             |
|                   | 902-225-104 <sup>A</sup> | G 3/8"              | 49.5               | 137              | G 1/4"                 | Female 12          | 34             | NA              | 9               | 24             | 12.027 / 12.000   | 32             |
|                   | 902-253-220              | G 3/8"              | 46.8               | 139              | G 1/4"                 | Hexagon 11         | 34             | NA              | 9               | NA             | 12.984 / 12.957   | 21             |

**Note A:** This union is a bore-mounted design.

**This series includes additional models. For more information,  
contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)**

**DEUBLIN**



# DEUBLIN

## 1109 Series Pop-Off™ Rotor-Mounted Rotating Unions for Coolant Service with Dry Running

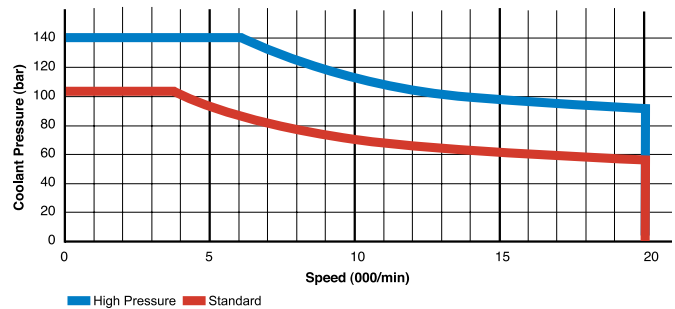
- Single passage for coolant or MQL
- Pop-Off™ technology allows unlimited dry running without media pressure
- Full-flow design has no obstructions to trap chips or debris
- Bearing-supported with threaded rotor for easy installation
- Dual ABEC 7 (ISO class P4) angular contact ball bearings
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

### Operating Data

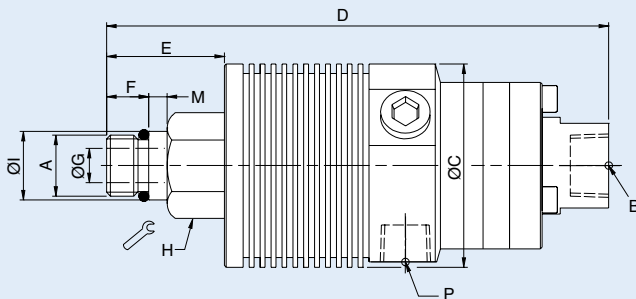
|                     |  |                     |                           |
|---------------------|--|---------------------|---------------------------|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |                     |                           |
| Filtration          | ISO 4406 Class 17/15/12,<br>max. 60 micron                   |                     |                           |
| Maximum Speed       | 20,000 min <sup>-1</sup> 20,000 rpm                          |                     |                           |
| Maximum Pressure    | See chart  |                     |                           |
| Maximum Flow        | 82 l/min<br>24.3 l/min                                       | 21.6 gpm<br>6.4 gpm | Standard<br>High Pressure |
| Maximum Temperature | 71°C<br>160°F  |                     |                           |



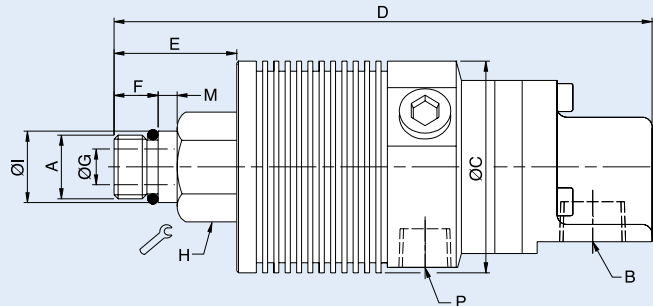
**NO AIR PRESSURE  
WITH ROTATION**



### Axial Connection



### Radial Connection



|               | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size (3 X 120°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter  | M Pilot Length |
|---------------|-----------------|---------------------|--------------------|------------------|------------------------|--------------------|----------------|-----------------|-----------------|----------------|-------------------|----------------|
| Standard      | 1109-011-165    | 3/8" NPT Axial      | 53                 | 132              | 1/4" NPT               | 5/8"-18 UNF LH     | 34             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|               | 1109-021-188    | G 3/8" Axial        | 53                 | 129              | G 1/4"                 | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1109-041-188    | 3/8" PT Axial       | 53                 | 129              | 1/4" PT                | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1109-010-165    | 3/8" NPT Radial     | 53                 | 138              | 1/4" NPT               | 5/8"-18 UNF LH     | 34             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|               | 1109-020-188    | G 3/8" Radial       | 53                 | 135              | G 1/4"                 | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1109-040-188    | 3/8" PT Radial      | 53                 | 135              | 1/4" PT                | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
| High Pressure | 1109-014-196    | 1/4" NPT Axial      | 53                 | 132              | 1/4" NPT               | 5/8"-18 UNF LH     | 34             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|               | 1109-024-212    | G 1/4" Axial        | 53                 | 129              | G 1/4"                 | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1109-044-212    | 1/4" PT Axial       | 53                 | 129              | 1/4" PT                | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1109-013-196    | 1/4" NPT Radial     | 53                 | 138              | 1/4" NPT               | 5/8"-18 UNF LH     | 34             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|               | 1109-023-212    | G 1/4" Radial       | 53                 | 135              | G 1/4"                 | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1109-043-212    | 1/4" PT Radial      | 53                 | 135              | 1/4" PT                | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |

**This series includes additional models. For more information,  
contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)**



# DEUBLIN

## 1109 Series Pop-Off™ Bore-Mounted Rotating Unions for Coolant Service with Dry Running

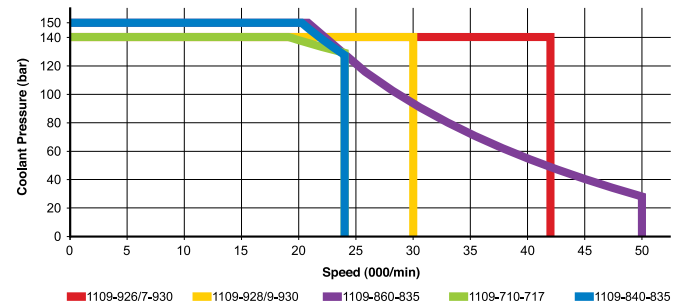
- Single passage for coolant or MQL
- Pop-Off™ technology allows unlimited dry running without media pressure
- Accepts up to 19 mm of axial drawbar movement
- Full-flow design has no obstructions to trap chips or debris
- Bore-mounted design for easy installation
- Matched, ISO class P4 hybrid ball bearings for smooth operation at high speeds
- Labyrinth system and large vents to protect ball bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum and stainless steel parts resist corrosion

### Operating Data

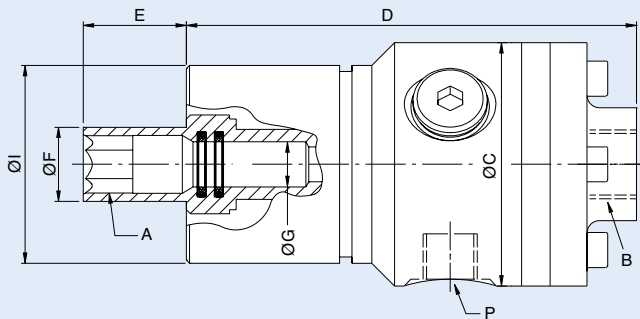
|                              |  |           |
|------------------------------|--|-----------|
| Media                        | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |           |
| Filtration                   | ISO 4406 Class 17/15/12,<br>max. 60 micron                   |           |
| Maximum Speed                | See chart  |           |
| Maximum Pressure             | 140 bar  | 2,030 psi |
| Maximum Flow<br>1109-710-717 | 24.3 l/min   | 6.4 gpm   |
|                              | 82 l/min   | 21.6 gpm  |
| Maximum Temperature          | 71°C   | 160°F     |



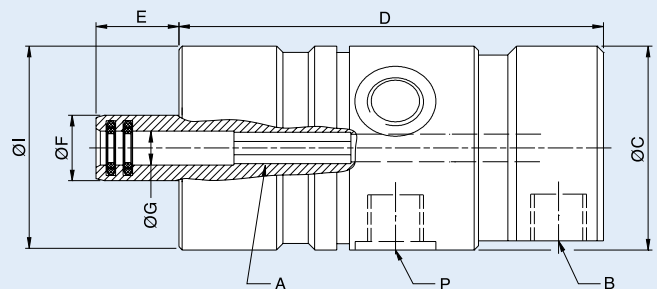
**NO AIR PRESSURE  
WITH ROTATION**



### Axial Connection (1109-710-717 shown)



### Radial Connection



|  | Ordering Number | B Supply Connection   | C Overall Diameter | D Housing Length | P Vent Size (3 X 120°) | A Rotor Connection | E Rotor Length | F Rotor O.D. | G Bore Diameter | I Housing Pilot Dia. | Maximum Speed (rpm) | Maximum Pressure (bar) |
|--|-----------------|-----------------------|--------------------|------------------|------------------------|--------------------|----------------|--------------|-----------------|----------------------|---------------------|------------------------|
|  | 1109-840-835    | G 1/4" axial & radial | 48                 | 109              | G 1/4"                 | Octagon 7.4 D10    | 19.5           | 16.5         | 8.1F9           | 48 g6                | 24,000              | 150                    |
|  | 1109-710-717    | G 3/8" axial          | 59                 | 109              | G 1/4"                 | Hexagon 12 D10     | 25             | 18           | 11H7            | 48 g6                | 24,000              | 140                    |
|  | 1109-929-930    | G 1/4" axial          | 48                 | 93               | G 1/4"                 | Octagon 7.4 D10    | 19.5           | 15.4         | 8.1F9           | 48 h7                | 30,000              | 140                    |
|  | 1109-928-930    | G 1/4" radial         | 48                 | 93               | G 1/4"                 | Octagon 7.4 D10    | 19.5           | 15.4         | 8.1F9           | 48 h7                | 30,000              | 140                    |
|  | 1109-927-930    | G 1/4" axial          | 48                 | 93               | G 1/4"                 | Octagon 7.4 D10    | 19.5           | 15.4         | 8.1F9           | 48 h7                | 42,000              | 140                    |
|  | 1109-926-930    | G 1/4" radial         | 48                 | 93               | G 1/4"                 | Octagon 7.4 D10    | 19.5           | 15.4         | 8.1F9           | 48 h7                | 42,000              | 140                    |
|  | 1109-860-835    | G 1/4" axial & radial | 48                 | 109              | G 1/4"                 | Octagon 7.4 D10    | 19.5           | 16.5         | 8.1F9           | 48 g6                | 50,000              | 150                    |

**This series includes additional models. For more information,  
contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)**

**DEUBLIN**



# DEUBLIN

## 1114 Series AutoSense™

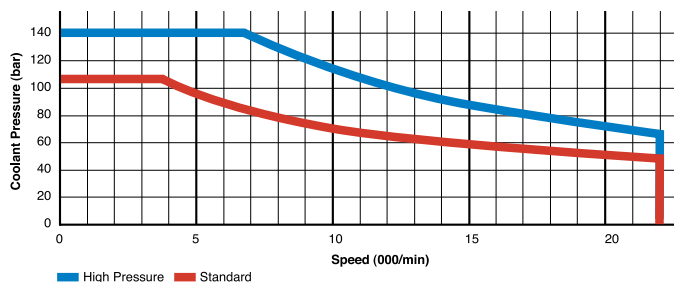
### Rotor-Mounted Rotating Unions for Coolant and Air Service with Dry Running

- Single passage for both coolant and dry air
- Patented AutoSense™ technology automatically changes between closed seals and controlled leakage operation in response to the kind of media
- Dual ABEC 7 (ISO class P4) angular contact ball bearings
- Threaded rotor for easy installation
- Full-flow design has no obstructions to trap chips or debris
- Labyrinth system and large vents to protect bearings
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

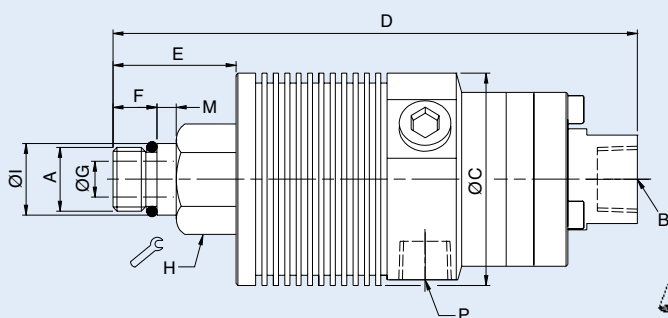


#### Operating Data

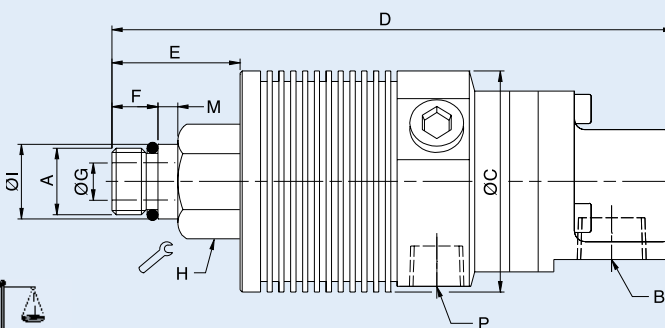
|                     |  |                     |                           |
|---------------------|--|---------------------|---------------------------|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi)<br>Air up to 10 bar (145 psi) |                     |                           |
| Filtration          | ISO 4406 Class 17/15/12,<br>max. 60 micron   |                     |                           |
| Maximum Speed       | 22,000 min <sup>-1</sup>   | 22,000 rpm          |                           |
| Maximum Pressure    | See chart  |                     |                           |
| Maximum Flow        | 82 l/min<br>24.3 l/min   | 21.6 gpm<br>6.4 gpm | Standard<br>High Pressure |
| Maximum Temperature | 71°C   | 160°F               |                           |



#### Axial Connection



#### Radial Connection



PATENTED

|               | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size (3 X 120°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter  | M Pilot Length |
|---------------|-----------------|---------------------|--------------------|------------------|------------------------|--------------------|----------------|-----------------|-----------------|----------------|-------------------|----------------|
| Standard      | 1114-011-165    | 3/8" NPT Axial      | 53                 | 134              | 1/4" NPT               | 5/8"-18 UNF LH     | 34             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|               | 1114-021-188    | G 3/8" Axial        | 53                 | 131              | G 1/4"                 | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1114-041-188    | 3/8" PT Axial       | 53                 | 131              | 1/4" PT                | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1114-010-165    | 3/8" NPT Radial     | 53                 | 140              | 1/4" NPT               | 5/8"-18 UNF LH     | 34             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|               | 1114-020-188    | G 3/8" Radial       | 53                 | 137              | G 1/4"                 | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1114-040-188    | 3/8" PT Radial      | 53                 | 137              | 1/4" PT                | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
| High Pressure | 1114-024-212    | G 1/4" Axial        | 53                 | 131              | G 1/4"                 | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1114-044-212    | 1/4" PT Axial       | 53                 | 131              | 1/4" PT                | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|               | 1114-043-212    | 1/4" PT Radial      | 53                 | 137              | 1/4" PT                | M16 x 1.5 LH       | 31             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |

This series includes additional models. For more information, contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)



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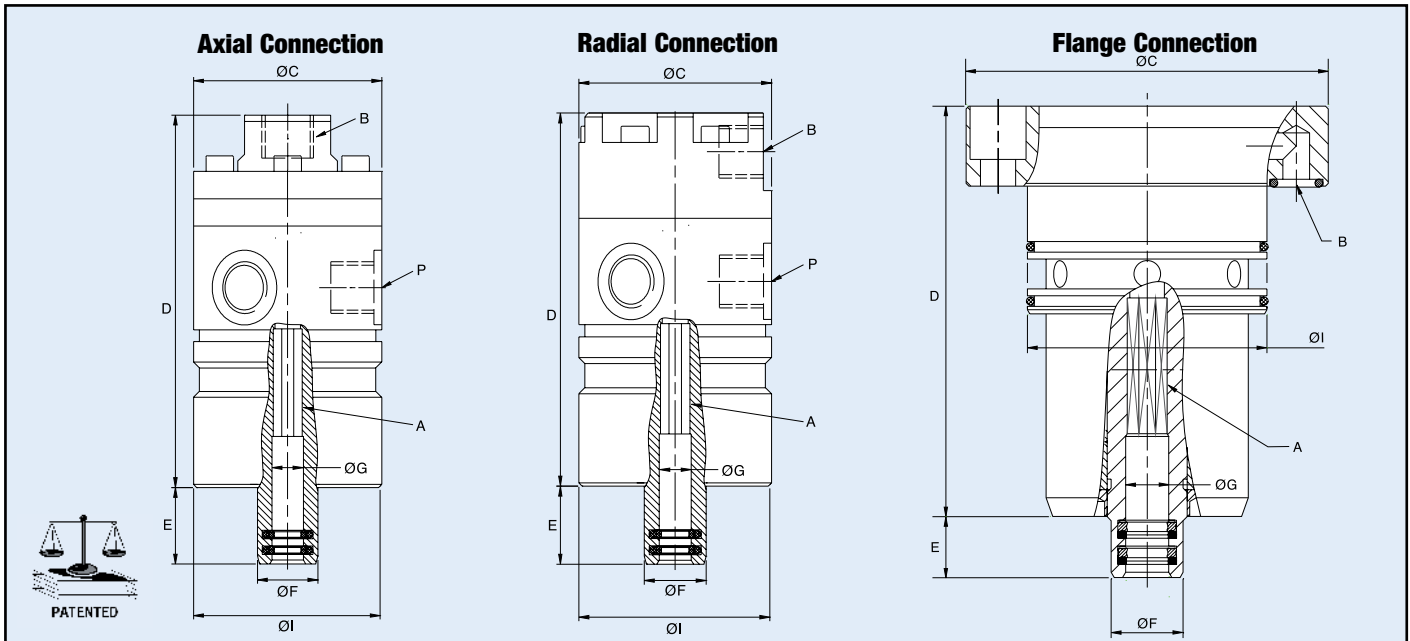
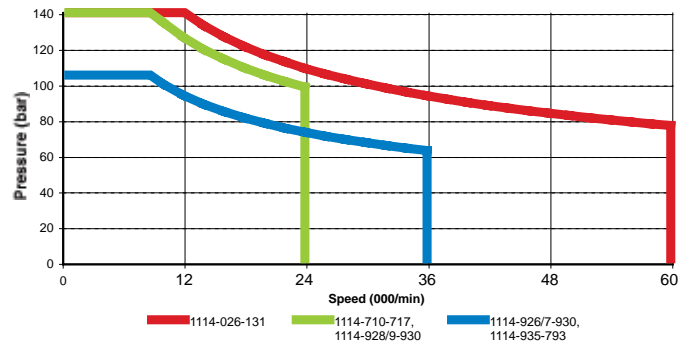
## 1114 Series AutoSense™

### Bore-Mounted Rotating Unions for Coolant and Air Service with Dry Running

- Single passage for both coolant and dry air
- Patented AutoSense™ technology automatically changes between closed seals and controlled leakage operation in response to the kind of media
- Bore-mounted design for easy installation
- Accepts up to 19 mm of axial drawbar movement
- Matched, ISO class P4 hybrid ball bearings for smooth operation at high speeds
- Labyrinth system and large vents to protect ball bearings
- Full-flow design has no obstructions to trap chips or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum and stainless steel parts resist corrosion

#### Operating Data

|                     |  |         |
|---------------------|--|---------|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi)<br>Air up to 10 bar (145 psi) |         |
| Filtration          | ISO 4406 Class 17/15/12,<br>max. 60 micron   |         |
| Maximum Speed       | See chart  |         |
| Maximum Pressure    | See chart  |         |
| Maximum Flow        | 24.3 l/min   | 6.4 gpm |
| Maximum Temperature | 71°C   | 160°F   |



|  | Ordering Number | B Supply Connection   | C Overall Diameter | D Housing Length | P Vent Size (3 X 120°) | A Rotor Connection | E Rotor Length | F Rotor O.D. | G Bore Diameter | I Housing Pilot Dia. | Maximum Speed (rpm) | Maximum Pressure (bar) |
|--|-----------------|-----------------------|--------------------|------------------|------------------------|--------------------|----------------|--------------|-----------------|----------------------|---------------------|------------------------|
|  | 1114-710-717    | G 3/8" axial          | 59                 | 111              | G 1/4"                 | Hexagon 12 D10     | 25             | 18           | 11 H7           | 48 g6                | 24,000              | 80                     |
|  | 1114-928-930    | G 1/4" radial         | 48                 | 95               | G 1/4"                 | Octagon 7.4 D10    | 19.5           | 15.4         | 8.1 F9          | 48 h7                | 24,000              | 105                    |
|  | 1114-929-930    | G 1/4" axial          | 48                 | 95               | G 1/4"                 | Octagon 7.4 D10    | 19.5           | 15.4         | 8.1 F9          | 48 h7                | 24,000              | 105                    |
|  | 1114-926-930    | G 1/4" radial         | 48                 | 95               | G 1/4"                 | Octagon 7.4 D10    | 19.5           | 15.4         | 8.1 F9          | 48 h7                | 36,000              | 105                    |
|  | 1114-927-930    | G 1/4" axial          | 48                 | 95               | G 1/4"                 | Octagon 7.4 D10    | 19.5           | 15.4         | 8.1 F9          | 48 h7                | 36,000              | 105                    |
|  | 1114-935-793    | Ø5 flange             | 68                 | 77               | 6 X Ø5                 | Octagon 7.4 D10    | 11.5           | 13.5         | 8.1 F9          | 45 f7                | 27,000              | 105                    |
|  | 1114-026-131    | G 1/8" axial & radial | 32                 | 79               | 5 X G 1/8"             | Hexagon 4.5 D10    | 11             | 11.5         | 5.1 H10         | 32 h7                | 60,000              | 150                    |

This series includes additional models. For more information, contact **DEUBLIN** at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)

# DEUBLIN

## 7000 and 1115 Series "Controlled Leakage" Rotating Unions for Dry Air or Vacuum at High Speed

- Single passage for dry or lubricated air
- Bearings are lubricated for life
- Full-flow design has no obstructions to trap chips or debris
- Threaded rotor for easy installation
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum and stainless steel parts resist corrosion

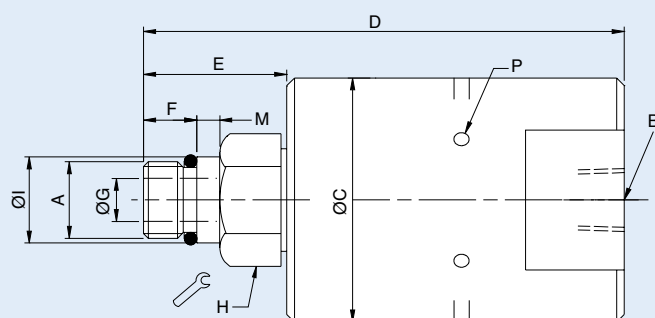
### Operating Data

|                     |   |            |
|---------------------|---|------------|
| Media               | Air (dry or lubricated)<br>Vacuum (7000-027-468 only) |            |
| Maximum Speed       |   |            |
| 1115-114-xxx        | 15,000 min <sup>-1</sup>                              | 15,000 rpm |
| 1115-680-xxx        | 15,000 min <sup>-1</sup>                              | 15,000 rpm |
| 7000-xxx-xxx        | 18,000 min <sup>-1</sup>                              | 18,000 rpm |
| Maximum Pressure    | 10 bar  | 145 psi    |
| Maximum Flow        |   |            |
| 1115-114-xxx        | 2,460 l/min   | 87 SCFM    |
| 1115-680-xxx        | 2,460 l/min   | 87 SCFM    |
| 7000-xxx-xxx        | 1,060 l/min   | 37 SCFM    |
| Maximum Temperature | 121°C   | 250°F      |

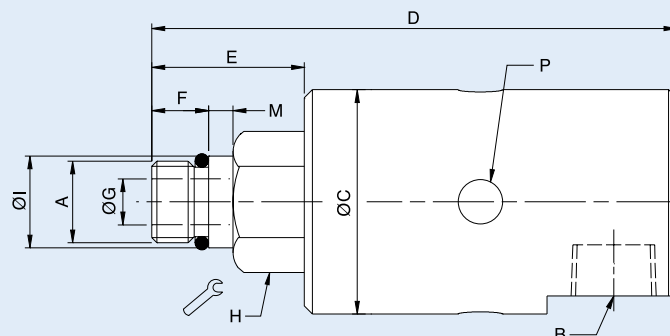


DRY AIR SERVICE

### Axial Connection (7000 Series)



### Radial Connection (1115 Series)



|                   | Ordering Number           | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size (6 X 60°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter  | M Pilot Length |
|-------------------|---------------------------|---------------------|--------------------|------------------|-----------------------|--------------------|----------------|-----------------|-----------------|----------------|-------------------|----------------|
| Axial Connection  | 7000-003-117              | 1/4" PT             | 51                 | 97               | 3                     | M16 x 1.5 RH       | 26             | 11              | 6               | 24             | 17.993 / 17.988   | 5              |
|                   | 7000-003-118              | 1/4" PT             | 51                 | 97               | 3                     | M16 x 1.5 LH       | 26             | 11              | 6               | 24             | 17.993 / 17.988   | 5              |
|                   | 7000-003-224              | 1/4" PT             | 51                 | 100              | 3                     | 5/8"-18 UNF RH     | 30             | 14              | 6               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                   | 7000-003-225              | 1/4" PT             | 51                 | 100              | 3                     | 5/8"-18 UNF LH     | 30             | 14              | 6               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                   | 7000-027-468 <sup>a</sup> | 3/8" NPT            | 51                 | 100              | 3                     | 5/8"-18 UNF LH     | 30             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                   | Ordering Number           | B Supply Connection | C Overall Diameter | D Overall Length | P Vent Size (4 X 90°) | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter  | M Pilot Length |
| Radial Connection | 1115-114-402              | G 3/8"              | 44                 | 106              | 9                     | 5/8"-18 UNF LH     | 33             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                   | 1115-114-556              | G 3/8"              | 44                 | 106              | 9                     | M16 x 1.5 LH       | 30             | 11              | 9               | 24             | 17.993 / 17.988   | 5              |
|                   | 1115-680-402              | 3/8" NPT            | 44                 | 106              | 9                     | 5/8"-18 UNF LH     | 33             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |
|                   | 1115-680-403              | 3/8" NPT            | 44                 | 106              | 9                     | 5/8"-18 UNF RH     | 33             | 14              | 9               | 15/16"         | 0.6555" / 0.6553" | 5              |

**Note:** Special two-passge unions for air and oil (used for MQL mixed in the spindle) may be found on page 32.

**Note A:** Model 7000-027-468 is for vacuum and air service.

**This series includes additional models. For more information,  
contact at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)**





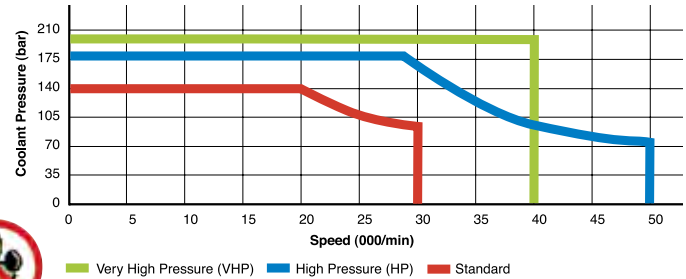
# DEUBLIN

## 1117 Series Bearingless "Closed Seal" Rotating Unions for Continuous Coolant Service

- Single passage for coolant or MQL
- Closed seals for transfer line and similar applications
- Full-flow design has no obstructions to trap chips or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Compact size can be adapted for custom installations
- Anodized aluminum housing resists corrosion

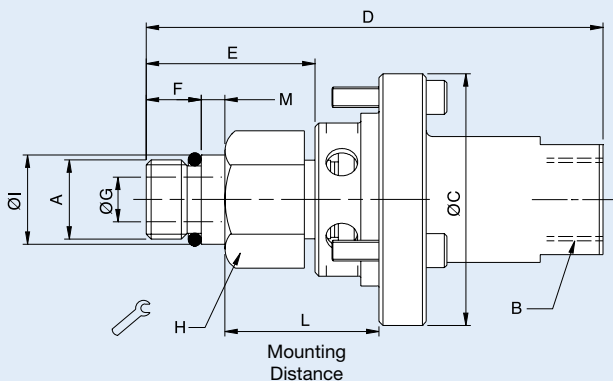
### Operating Data

|                     |  |                                |  |
|---------------------|--|--------------------------------|--|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |                                |  |
| Filtration          | ISO 4406 Class 17/15/12, max. 60 micron                      |                                |  |
| Maximum Speed       | See table  |                                |  |
| Maximum Pressure    | See Chart  |                                |  |
| Maximum Flow        | 82 l/min<br>24.3 l/min<br>2.7 l/min                          | 21.6 gpm<br>6.4 gpm<br>0.7 gpm | Standard<br>High Pressure (HP)<br>Very High Pressure (VHP) |
| Maximum Temperature | 71°C   | 160°F                          |  |

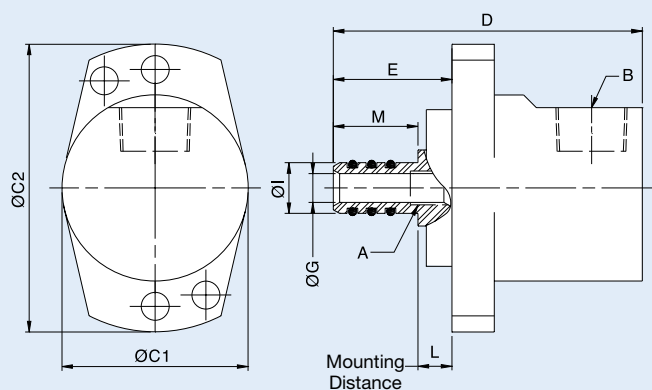


DO NOT RUN DRY

### Axial Connection



### Radial Connection



|                  |          | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length | L Mounting Distance | A Rotor Connection | E Rotor Length | G Bore Diameter | H Across Flats | I Pilot Diameter  | M Pilot Length | Max Speed (rpm)     |
|------------------|----------|-----------------|---------------------|--------------------|------------------|---------------------|--------------------|----------------|-----------------|----------------|-------------------|----------------|---------------------|
| Radial           | Standard | 1117-706        | G 3/8"              | 44                 | 72               | 7.5 / 7.0           | 12 f7              | 21             | 7               | NA             | 11.984 / 11.966   | 20             | 10,000 <sup>A</sup> |
|                  |          | 1117-711        | 3/8" NPT            | 44 x 68            | 73               | 8.0 / 7.5           | 12 f7              | 28             | 7               | NA             | 11.984 / 11.966   | 20             | 10,000 <sup>A</sup> |
|                  |          | 1117-792        | G 3/8"              | 44                 | 72               | 7.5 / 7.0           | 12 f7              | 21             | 7               | NA             | 11.984 / 11.966   | 20             | 30,000              |
| Axial Connection | Standard | 1117-002-110    | 3/8" NPT            | 51                 | 95               | 31.7 / 30.5         | 5/8"-18 UNF RH     | 37             | 9               | 15/16"         | 0.6555" / 0.6553" | 5              | 30,000              |
|                  |          | 1117-002-111    | 3/8" NPT            | 51                 | 95               | 31.7 / 30.5         | 5/8"-18 UNF LH     | 37             | 9               | 15/16"         | 0.6555" / 0.6553" | 5              | 30,000              |
|                  |          | 1117-002-116    | 3/8" NPT            | 51                 | 92               | 31.7 / 30.5         | M16 x 1.5 LH       | 34             | 9               | 24             | 17.993 / 17.988   | 5              | 30,000              |
|                  |          | 1117-058-116    | G 3/8"              | 51                 | 92               | 31.7 / 30.5         | M16 x 1.5 LH       | 34             | 9               | 24             | 17.993 / 17.988   | 5              | 30,000              |
|                  |          | 1117-028-374    | 20 h5               | 40                 | 63               | 25                  | M12 x 1.25 LH      | 28             | 6               | 17             | 12.994 / 12.989   | 6              | 46,000              |
|                  |          | 1117-789        | 25 f7               | 36 x 52            | 56               | 23.7 / 23.3         | 12 f7              | 28             | 7               | NA             | 11.984 / 11.996   | 20             | 30,000              |
|                  | HP       | 1117-490-493    | 3/8" PT             | 54                 | 105              | 39.6 / 38.6         | M12 x 1.25 LH      | 40             | 5               | 18             | 14.000 / 13.995   | 5              | 50,000              |
|                  | VHP      | 1117-063-294    | G 1/4"              | 51                 | 92               | 31.7 / 30.5         | M16 x 1.5 LH       | 34             | 5               | 24             | 17.993 / 17.988   | 5              | 40,000              |

Note A: Union includes integral lip seal for added spindle protection.

This series includes additional models. For more information, contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)

DEUBLIN

# DEUBLIN

## Special Bearingless Rotating Unions for Multi-Spindle Applications

1117-510-511



### Features

- Closed seals
- Single passage for coolant or MQL
- Small size for closely-spaced spindles: 22 mm housing and 1/4"-28 UNF rotor

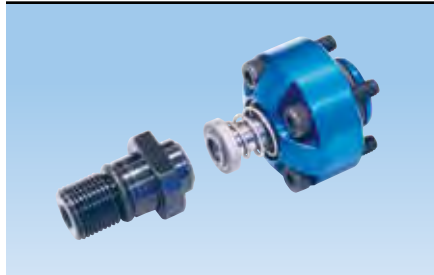


DO NOT RUN DRY

### Operating Data

|                     |  |            |
|---------------------|--|------------|
| Media               | Water-based coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |
| Filtration          | ISO 4406 Class 17/15/12,<br>max. 60 micron                   |            |
| Maximum Speed       | 50,000 min <sup>-1</sup>                                     | 50,000 rpm |
| Maximum Pressure    | 180 bar  | 2,610 psi  |
| Maximum Flow        | 9.7 l/min  | 2.6 gpm    |
| Maximum Temperature | 71°C   | 160°F      |

1157-022-109



### Features

- Closed seals
- Single passage for coolant or MQL
- Small size for closely-spaced spindles: 31 mm diameter housing and M12 x 1 rotor

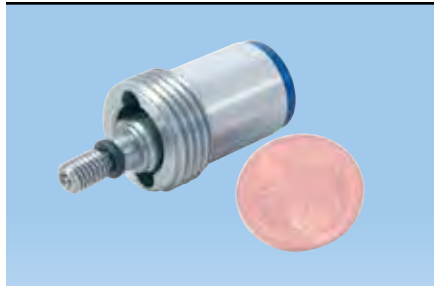


DO NOT RUN DRY

### Operating Data

|                     |  |            |
|---------------------|--|------------|
| Media               | Water-based coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |
| Filtration          | ISO 4406 Class 17/15/12,<br>max. 60 micron                   |            |
| Maximum Speed       | 40,000 min <sup>-1</sup>                                     | 40,000 rpm |
| Maximum Pressure    | 140 bar  | 2,030 psi  |
| Maximum Flow        | 24.3 l/min   | 6.4 gpm    |
| Maximum Temperature | 71°C   | 160°F      |

1121-910-913



### Features

- Patented Pop-Off™ technology
- Single passage for coolant or MQL
- Small size for closely-spaced spindles: Housing fits M18 x1.5 counterbore; rotor threads are M5

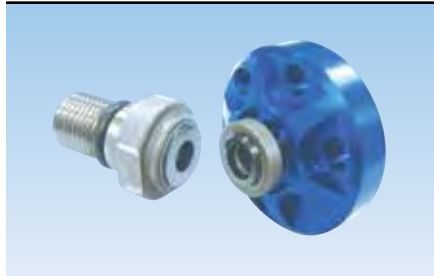


NO AIR PRESSURE  
WITH ROTATION

### Operating Data

|                     |   |            |
|---------------------|---|------------|
| Media               | Water-based coolant<br>MQL (oil mist) up to 10 bar (145 psi)<br>Cutting oil |            |
| Filtration          | ISO 4406 Class 17/15/12,<br>max. 60 micron                                  |            |
| Maximum Speed       | 50,000 min <sup>-1</sup>  | 50,000 rpm |
| Maximum Pressure    | 180 bar   | 2,610 psi  |
| Maximum Flow        | 2.3 l/min   | 0.6 gpm    |
| Maximum Temperature | 71°C  | 160°F      |

1151-020-127



### Features

- Patented Pop-Off™ technology
- Single passage for coolant or MQL
- Small size for closely-spaced spindles: 32 mm diameter housing and M10 x 1 rotor



NO AIR PRESSURE  
WITH ROTATION

### Operating Data

|                     |  |            |
|---------------------|--|------------|
| Media               | Water-based coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |
| Filtration          | ISO 4406 Class 17/15/12,<br>max. 60 micron                   |            |
| Maximum Speed       | 40,000 min <sup>-1</sup>                                     | 40,000 rpm |
| Maximum Pressure    | 140 bar  | 2,030 psi  |
| Maximum Flow        | 24.3 l/min   | 6.4 gpm    |
| Maximum Temperature | 71°C   | 160°F      |

This series includes additional models. For more information, contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)



# DEUBLIN

## 1121 Series Bearingless Pop-Off™ “Micro Stroke” Rotating Unions for Coolant Service

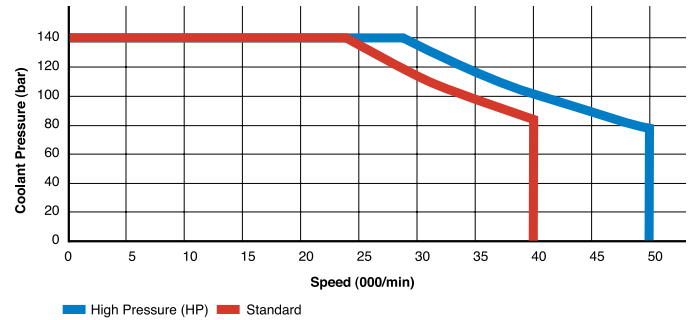
- Single passage for coolant or MQL
- Patented Pop-Off™ technology allows unlimited dry running without media pressure
- Ultra-short 0.1 mm pop-off stroke restricts drainage of residual coolant during tool change
- Full-flow design has no obstructions to trap chips or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

### Operating Data

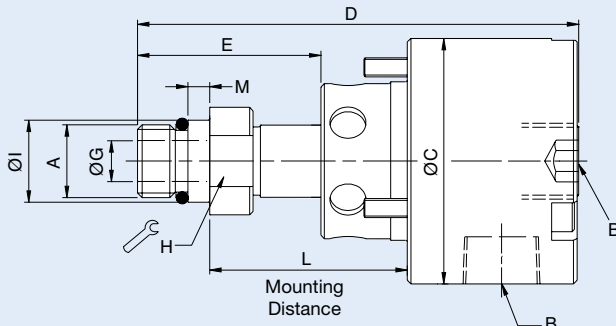
|                     |  |  |
|---------------------|--|--|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |  |
| Filtration          | ISO 4406 Class 17/15/12, max. 60 micron                      |  |
| Maximum Speed       | 40,000 min <sup>-1</sup> 40,000 rpm Standard                 | 50,000 min <sup>-1</sup> 50,000 rpm High Pressure (HP) |
| Maximum Pressure    | 140 bar  | 2,030 psi  |
| Maximum Flow        | 24.3 l/min 6.4 gpm   |  |
| 1121-330-327        | 38.7 l/min 10.2 gpm  |  |
| 1121-330-345        | 82 l/min 21.6 gpm  |  |
| Maximum Temperature | 71°C   | 160°F  |



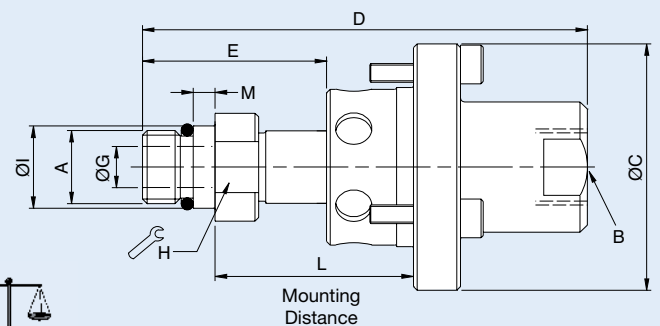
**NO AIR PRESSURE  
WITH ROTATION**



### Dual Connection



### Axial Connection



|          |                  | Ordering Number | B Supply Connection            | C Overall Diameter | D Overall Length | L Mounting Distance | A Rotor Connection | E Rotor Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length | Max Speed (rpm) |
|----------|------------------|-----------------|--------------------------------|--------------------|------------------|---------------------|--------------------|----------------|-----------------|----------------|------------------|----------------|-----------------|
| Standard | Dual Connection  | 1121-300-327    | 3/8" PT                        | 54                 | 94               | 39.6 / 38.6         | M12 x 1.25 LH      | 37             | 6               | 18             | 14.000 / 13.995  | 5              | 40,000          |
|          |                  | 1121-300-345    | 3/8" PT                        | 54                 | 97               | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 9               | 21             | 17.993 / 17.988  | 5              | 40,000          |
|          |                  | 1121-330-327    | 3/8" PT                        | 54                 | 94               | 39.6 / 38.6         | M12 x 1.25 LH      | 37             | 6               | 18             | 14.000 / 13.995  | 5              | 40,000          |
|          |                  | 1121-330-345    | 3/8" PT                        | 54                 | 97               | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 9               | 21             | 17.993 / 17.988  | 5              | 40,000          |
|          |                  | 1121-380-327    | G 3/8" Radial<br>1/4" PT Axial | 54                 | 98               | 39.6 / 38.6         | M12 x 1.25 LH      | 37             | 6               | 18             | 14.000 / 13.995  | 5              | 40,000          |
|          |                  | 1121-380-345    | G 3/8" Radial<br>1/4" PT Axial | 54                 | 102              | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 9               | 21             | 17.993 / 17.988  | 5              | 40,000          |
|          | Axial Connection | 1121-400-327    | 3/8" PT                        | 54                 | 94               | 39.6 / 38.6         | M12 x 1.25 LH      | 37             | 6               | 18             | 14.000 / 13.995  | 5              | 40,000          |
|          |                  | 1121-400-345    | 3/8" PT                        | 54                 | 98               | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 9               | 21             | 17.993 / 17.988  | 5              | 40,000          |
|          |                  | 1121-410-493    | 3/8" PT                        | 54                 | 105              | 39.6 / 38.6         | M12 x 1.25 LH      | 40             | 5               | 18             | 14.000 / 13.995  | 5              | 50,000          |
|          |                  | 1121-430-431    | 3/8" PT                        | 54                 | 108              | 44.0 / 43.0         | M16 x 1.5 LH       | 43             | 5               | 21             | 17.993 / 17.988  | 5              | 50,000          |

**This series includes additional models. For more information,  
contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)**

**DEUBLIN**

# DEUBLIN

## 1129 Series Bearingless Pop-Off™ Rotating Unions for Coolant Service

- Single passage for coolant or MQL
- Patented Pop-Off™ technology allows unlimited dry running without media pressure
- Pop-off stroke of 0.7-3.0 mm compensates for thermal expansion of spindle during extended operation as well as variations in drawbar position
- Full-flow design has no obstructions to trap chips or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

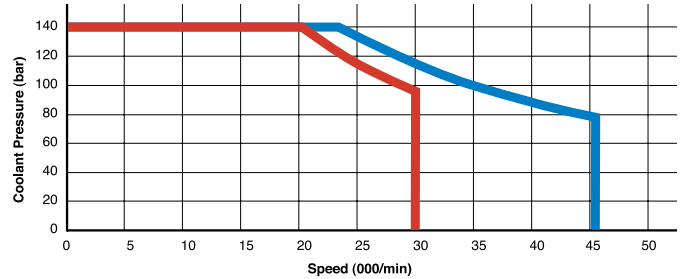


### Operating Data

|                     |  |            |                    |
|---------------------|--|------------|--------------------|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi) |            |                    |
| Filtration          | ISO 4406 Class 17/15/12, max. 60 micron                      |            |                    |
| Maximum Speed       | 30,000 min <sup>-1</sup>                                     | 30,000 rpm | Standard           |
|                     | 46,000 min <sup>-1</sup>                                     | 46,000 rpm | High Pressure (HP) |
| Maximum Pressure    | 140 bar  | 2,030 psi  |                    |
| Maximum Flow        | 24.3 l/min   | 6.4 gpm    |                    |
| 1129-016-301        | 53.0 l/min   | 14.0 gpm   |                    |
| Maximum Temperature | 71°C   | 160°F      |                    |

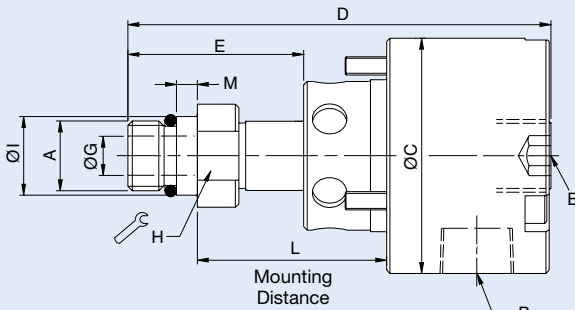


**NO AIR PRESSURE  
WITH ROTATION**

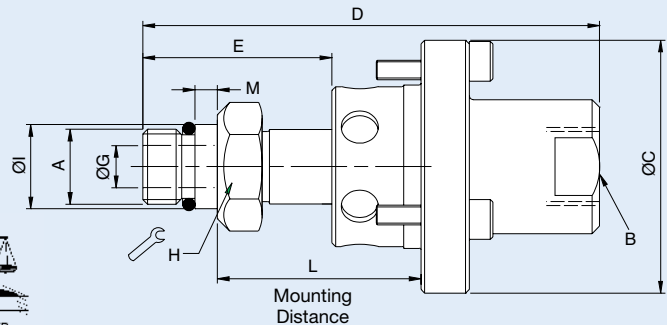


■ High Pressure (HP) ■ Standard

### Dual Connection



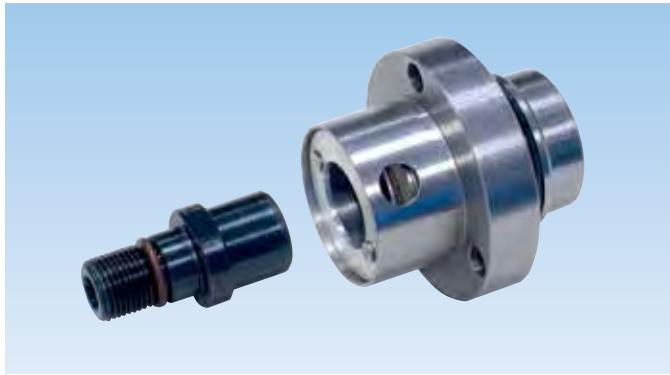
### Axial Connection



|                 | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length | L Mounting Distance | A Rotor Connection | E Rotor Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length | Max Speed (rpm) |
|-----------------|-----------------|---------------------|--------------------|------------------|---------------------|--------------------|----------------|-----------------|----------------|------------------|----------------|-----------------|
| Dual Connection | 1129-033-301    | 3/8" PT             | 54                 | 97               | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 9               | 24             | 17.993 / 17.988  | 5              | 30,000          |
|                 | 1129-033-327    | 3/8" PT             | 54                 | 94               | 39.6 / 38.6         | M12 x 1.25 LH      | 37             | 6               | 18             | 14.000 / 13.995  | 5              | 30,000          |
|                 | 1129-050-301    | G 3/8"              | 54                 | 101              | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 9               | 24             | 17.993 / 17.988  | 5              | 30,000          |
|                 | 1129-859-731    | G 3/8"              | 54                 | 106              | 39.2 / 38.8         | M12 x 1.25 LH      | 37             | 5               | 18             | 14.000 / 13.995  | 5              | 30,000          |
| Standard        | 1129-016-301    | 3/8" PT             | 54                 | 97               | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 9               | 24             | 17.993 / 17.988  | 5              | 30,000          |
|                 | 1129-036-301    | 3/8" PT             | 54                 | 98               | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 9               | 24             | 17.993 / 17.988  | 5              | 30,000          |
|                 | 1129-036-327    | 3/8" PT             | 54                 | 94               | 39.6 / 38.6         | M12 x 1.25 LH      | 37             | 6               | 18             | 14.000 / 13.995  | 5              | 30,000          |
|                 | 1129-039-301    | 3/8" PT             | 54                 | 97               | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 9               | 24             | 17.993 / 17.988  | 5              | 30,000          |
|                 | 1129-730-731    | G 3/8"              | 54                 | 94               | 39.2 / 38.8         | M12 x 1.25 LH      | 37             | 5               | 18             | 14.000 / 13.995  | 5              | 30,000          |
|                 | 1129-927-929    | G 3/8"              | 54                 | 101              | 39.2 / 38.8         | M14 x 1.5 LH       | 37             | 7               | 24             | 14.494 / 14.489  | 5              | 30,000          |
|                 | 1129-330-342    | 30 mm Counterbore   | 48                 | 72               | 37.5                | M12 x 1 RH         | 28             | 6               | 22.2           | 13.000 / 12.992  | 7              | 20,000          |
|                 | 1129-053-137    | 20 mm Counterbore   | 40                 | 63               | 27.0/24.0           | M12 x 1.25 LH      | 28             | 6               | 17             | 13.000 / 12.995  | 6              | 46,000          |
|                 |                 |                     |                    |                  |                     |                    |                |                 |                |                  |                |                 |
|                 |                 |                     |                    |                  |                     |                    |                |                 |                |                  |                |                 |
| HP              |                 |                     |                    |                  |                     |                    |                |                 |                |                  |                |                 |

**This series includes additional models. For more information, contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)**





# DEUBLIN

## 1129 Series Bearingless “Controlled Leakage” Rotating Unions for Dry Air at High Speed

- Single passage for dry or lubricated air

### Operating Data

|                     |                          |            |
|---------------------|--------------------------|------------|
| Media               | Air (dry or lubricated)  |            |
| Maximum Speed       | 20,000 min <sup>-1</sup> | 20,000 rpm |
| Maximum Pressure    | 10 bar                   | 145 psi    |
| Maximum Temperature | 71°C                     | 160°F      |



DRY AIR SERVICE

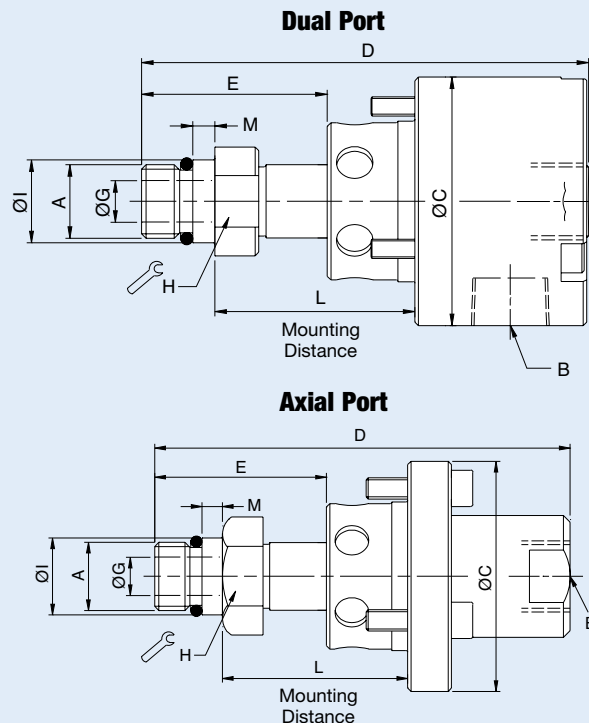
|       | Ordering Number | B Supply Connection | C Overall Diameter | D Overall Length | L Mounting Distance | A Rotor Connection | E Rotor Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length | Max Speed (rpm) |
|-------|-----------------|---------------------|--------------------|------------------|---------------------|--------------------|----------------|-----------------|----------------|------------------|----------------|-----------------|
| Axial | 1129-051-482    | 30 f7 Counterbore   | 48                 | 72               | 40                  | M12 x 1 RH         | 33             | 6               | 17             | 12.994 / 12.989  | 6              | 20,000          |
|       | 1129-490-489    | 30 f7 Counterbore   | 48                 | 84               | 40.8 / 40.2         | M12 x 1 RH         | 40             | 6               | 19             | 13.000 / 12.995  | 15             | 20,000          |
|       | 1129-775        | 44 e8 Counterbore   | 44                 | 63               | 38.5                | 12 e7              | 25             | 7               | NA             | 11.984 / 11.966  | 24             | 20,000          |

## Bearingless Rotating Unions Available Configurations

DEUBLIN bearingless Pop-Off™ unions are available to fit virtually every machine tool in the world. Shown below are only some of the many configurations available from DEUBLIN.

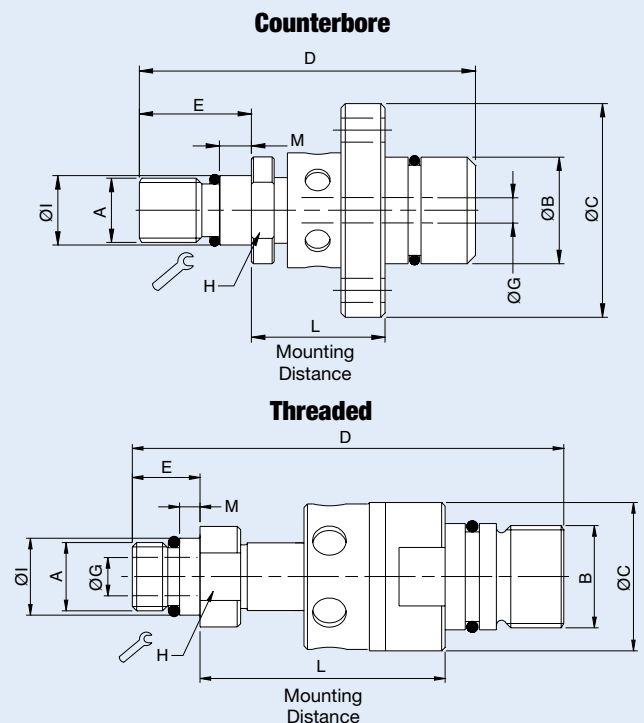
### Outboard Mounting

With outboard mounting, the union housing is installed from outside the spindle. Replacement is faster and easier with this mounting style.



### Inboard Mounting

With inboard mounting, the union housing is installed inside the spindle, typically within or near the tool clamping unit. Because a hose connection is not required, this mounting style can be very compact.



This series includes additional models. For more information, contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)

DEUBLIN

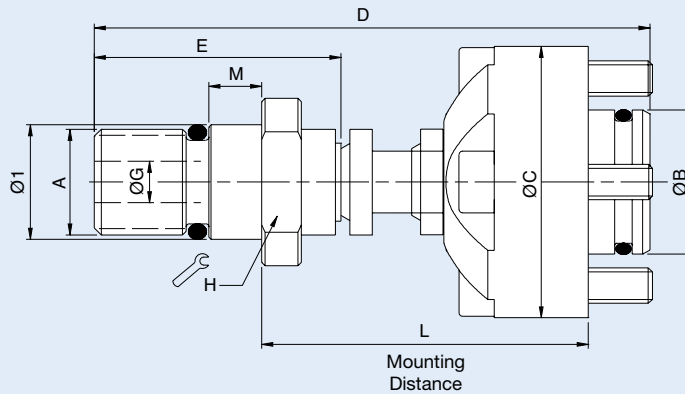
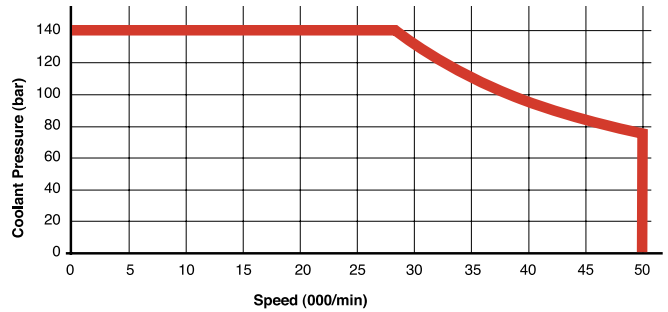
# DEUBLIN

## 1154 Series Bearingless AutoSense™ “Long Stroke” Rotating Unions for Coolant and Air Service

- Single passage for coolant or MQL
- Patent-pending AutoSense™ technology automatically changes between closed seals and controlled leakage operation in response to the kind of media
- Non-rotating element has a “stroke” (axial movement) of more than 8 mm, to track drawbar movement even when union is mounted on the clamping device
- Full-flow design has no obstructions to trap chips or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

### Operating Data

|                     |  |            |
|---------------------|--|------------|
| Media               | Water-based Coolant<br>MQL (oil mist) up to 10 bar (145 psi)<br>Air up to 10 bar (145 psi) |            |
| Filtration          | ISO 4406 Class 17/15/12, max. 60 micron  |            |
| Maximum Speed       | 40,000 min <sup>-1</sup>   | 40,000 rpm |
| Maximum Pressure    | 140 bar  | 2,030 psi  |
| Maximum Flow        | 24.3 l/min   | 6.4 gpm    |
| Maximum Temperature | 71°C   | 160°F      |

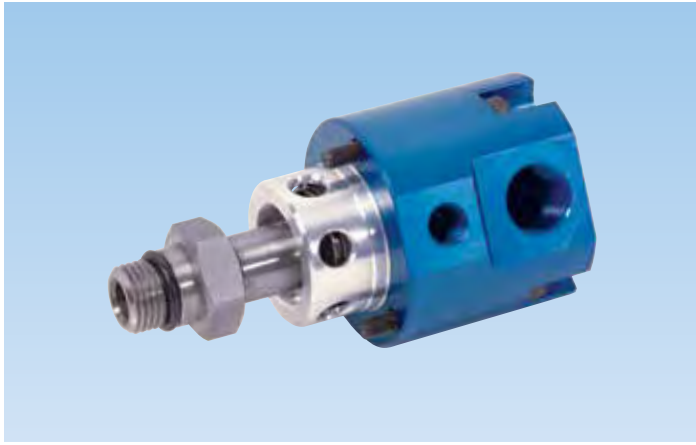


|       | Ordering Number           | B Supply Connection | C Overall Diameter | D Overall Length | L Mounting Distance | A Rotor Connection | E Rotor Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length | Max Speed (rpm) |
|-------|---------------------------|---------------------|--------------------|------------------|---------------------|--------------------|----------------|-----------------|----------------|------------------|----------------|-----------------|
| Axial | 1154-002-105              | 16.4 mm Counterbore | 31                 | 72               | 49.0 / 42.0         | M8 x 1 RH          | 37             | 4               | 15             | 8.995 / 8.991    | 3.5            | 40,000          |
|       | 1154-002-109              | 16.4 mm Counterbore | 31                 | 63               | 37.0 / 30.0         | M12 x 1 RH         | 28             | 5               | 15             | 12.994 / 12.989  | 6              | 40,000          |
|       | 1154-002-133              | 16.4 mm Counterbore | 31                 | 65               | 37.0 / 30.0         | M16 x 1.5 LH       | 30             | 4               | 19             | 17.994 / 17.989  | 6              | 40,000          |
|       | 1154-002-140              | 16.4 mm Counterbore | 31                 | 63               | 37.0 / 30.0         | M12 x 1.25 LH      | 28             | 5               | 15             | 12.994 / 12.989  | 6              | 40,000          |
|       | 1154-003-107              | 20 mm Counterbore   | 39                 | 71               | 40.0 / 33.0         | M12 x 1.25 LH      | 36             | 5               | 15             | 12.994 / 12.989  | 6              | 40,000          |
|       | 1154-003-137              | 20 mm Counterbore   | 38.5               | 62               | 31.0 / 25.0         | M12 x 1.25 LH      | 27             | 5               | 15             | 12.994 / 12.989  | 6              | 40,000          |
|       | 1154-004-109              | 30 mm Counterbore   | 48.5               | 69               | 42.0 / 35.0         | M12 x 1 RH         | 28             | 5               | 15             | 12.994 / 12.989  | 6              | 40,000          |
|       | 1154-005-109              | 16.4 mm Counterbore | 31                 | 87               | 49.0 / 42.0         | M12 x 1 RH         | 28             | 5               | 15             | 12.994 / 12.989  | 6              | 40,000          |
|       | 1154-012-109 <sup>A</sup> | 16.4 mm Counterbore | 31                 | 63               | 37.0 / 30.0         | M12 x 1 RH         | 28             | 5               | 15             | 12.994 / 12.989  | 6              | 40,000          |
|       | 1154-012-133 <sup>A</sup> | 16.4 mm Counterbore | 31                 | 65               | 37.0 / 30.0         | M16 x 1.5 RH       | 30             | 5               | 19             | 17.994 / 17.989  | 6              | 40,000          |

**Note A:** 1154-012-xxx include a spring to fully retract the non-rotating element when pressure is discontinued.

**Note B:** Overall Length (D) is at maximum Mounting Distance (L).

**This series includes additional models. For more information, contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)**



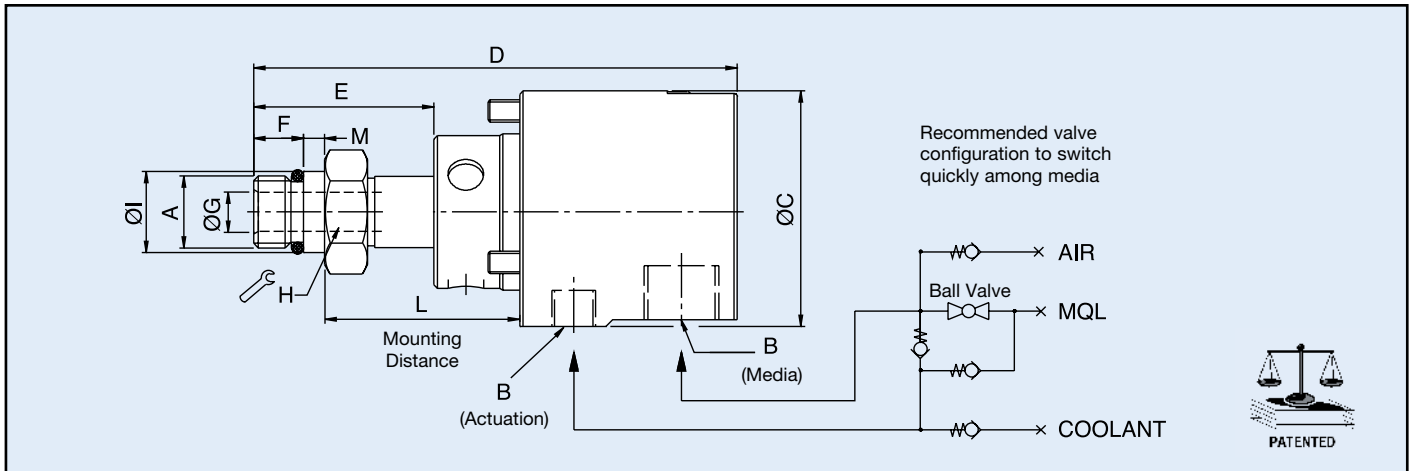
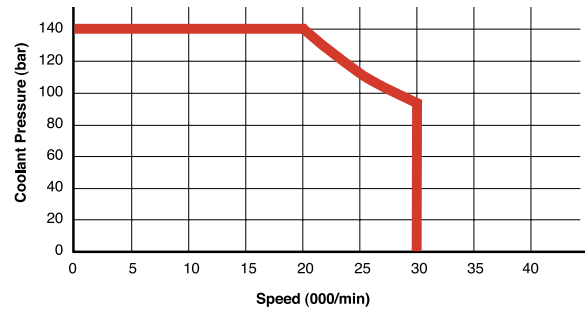
# DEUBLIN

## 1139 Series Bearingless “All-Media” Rotating Unions for Coolant, MQL, and Air Service

- Single passage for all media
- Patented technology operates with closed seals for coolant, as a Pop-Off™ when pressure is removed, and as with a microscopic gap between the seals (“controlled leakage”) with pressurized dry air
- Non-rotating element has a “stroke” (axial movement) of 0.7-3.0 mm, for reliable sealing even with thermal expansion of spindle and variations in drawbar position
- Full-flow design has no obstructions to trap chips or debris
- Balanced mechanical seals made from silicon carbide for long life even under difficult operating conditions
- Anodized aluminum housing resists corrosion

### Operating Data

|                     |   |                      |                     |
|---------------------|---|----------------------|---------------------|
| Media               | Water-based Coolant<br>MQL (oil mist)<br>Air, dry or lubricated |                      |                     |
| Filtration          | ISO 4406 Class 17/15/12, max. 60 micron                         |                      |                     |
| Maximum Speed       | 30,000 min <sup>-1</sup> 30,000 rpm                             |                      |                     |
| Maximum Pressure    | 140 bar<br>10 bar   | 2,030 psi<br>145 psi | Coolant<br>MQL, Air |
| Maximum Flow        | 28 l/min  | 7.4 gpm              |                     |
| Maximum Temperature | 71°C  | 160°F                |                     |



|                  | Ordering Number | B Supply Connection <sup>A</sup>  | C Overall Diameter | D Overall Length | L Mounting Distance | A Rotor Connection | E Rotor Length | F Thread Length | G Bore Diameter | H Across Flats | I Pilot Diameter | M Pilot Length |
|------------------|-----------------|-----------------------------------|--------------------|------------------|---------------------|--------------------|----------------|-----------------|-----------------|----------------|------------------|----------------|
| Axial Connection | 1139-020-116    | 3/8" NPT Axial<br>1/8" NPT Radial | 51                 | 97               | 31.6 / 30.6         | M16 x 1.5 LH       | 28             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|                  | 1139-032-301    | 3/8" PT Axial<br>1/8" PT Radial   | 54                 | 109              | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|                  | 1139-032-327    | 3/8" PT Axial<br>1/8" PT Radial   | 54                 | 106              | 39.6 / 38.6         | M12 x 1.25 LH      | 37             | 12              | 6               | 21             | 14.000 / 13.995  | 5              |
|                  | 1139-041-301    | 3/8" PT Axial<br>1/8" PT Radial   | 54                 | 109              | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|                  | 1139-744-301    | G 3/8" Axial<br>G 1/8" Radial     | 54                 | 101              | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
| Radial           | 1139-746-301    | G 3/8" Radial<br>G 1/8" Radial    | 54                 | 108              | 44.0 / 43.0         | M16 x 1.5 LH       | 40             | 11              | 9               | 24             | 17.993 / 17.988  | 5              |
|                  | 1139-746-327    | G 3/8" Radial<br>G 1/8" Radial    | 54                 | 105              | 44.0 / 43.0         | M12 x 1.25 LH      | 37             | 12              | 6               | 24             | 14.000 / 13.995  | 5              |

**Note A:** All 1139 series have a 1/8" radial connection for the actuation port.

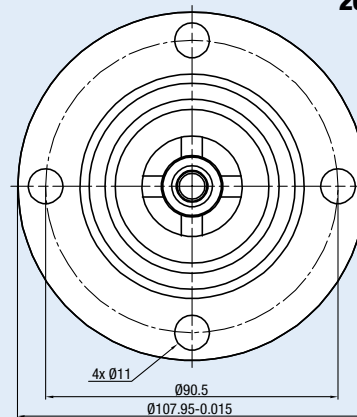
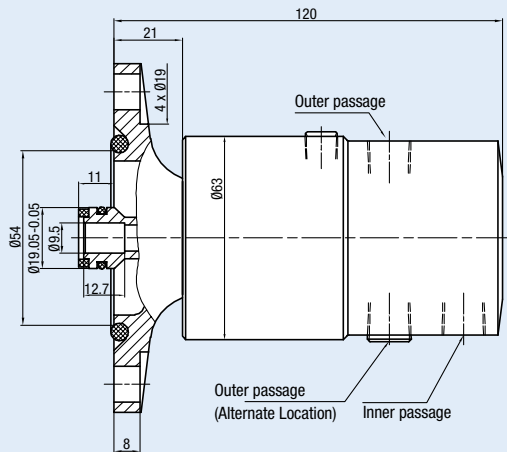
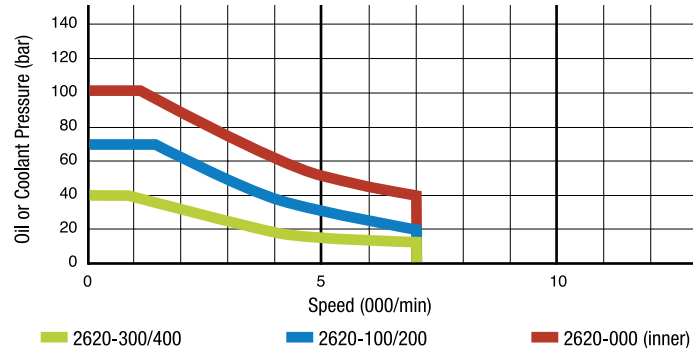
# DEUBLIN

## 2620 Series 2-Passage Rotating Unions for Various Media

- Two independent passages for applications such as clamping and unclamping
- Balanced mechanical seals for each passage provide long life and reduced torque even at maximum pressure
- Closed seals provide continuous containment of media
- Dual precision ball bearings for smooth operation
- Labyrinth protection for ball bearings
- Mountings options are compatible with *DEUBLIN* 2520 or 1579 series unions

### Operating Data

|                     |   |                        |
|---------------------|---|------------------------|
| Media               | See table                               |                        |
| Filtration          | ISO 4406 Class 17/15/12, max. 60 micron |                        |
| Maximum Speed       | 7,000 min <sup>-1</sup> 7,000 rpm       |                        |
| Maximum Pressure    | See table                               |                        |
| Maximum Flow        | 69 l/min                                | 18.2 gpm (per passage) |
| Maximum Temperature | 71°C                                    | 160°F                  |



|  | With Ø 108 mm flanged rotor |                         | With Ø 88 mm flanged rotor |                    |               | With Ø 81 mm flanged rotor |                    | Inner Passage |                     | Outer Passage |                     | Notes  |
|--|-----------------------------|-------------------------|----------------------------|--------------------|---------------|----------------------------|--------------------|---------------|---------------------|---------------|---------------------|--|
|  | Ordering Number             | Supply Connections      | Ordering Number            | Supply Connections |               | Ordering Number            | Supply Connections | Media         | Max. Pressure {bar} | Media         | Max. Pressure {bar} |  |
|  |                             | Inner and Outer Passage |                            | Inner Passage      | Outer Passage |                            |                    |               |                     |               |                     |  |
|  | 2620-000-252                | 1/4 NPT                 | 2620-002-940               | G1/4"              | G1/4"         | 2620-000-157               | 1/4 NPT            | Hydraulic oil | 100                 | Hydraulic oil | 30                  |  |
|  | 2620-100-252                | 1/4 NPT                 | 2620-102-940               | G3/8"              | G1/8"         | 2620-100-157               | 1/4 NPT            | Hydraulic oil | 70                  | Air           | 6                   | Air seals may be lubricated through oil cup or by using oiled air. |
|  | 2620-120-252                | 1/4 NPT                 | 2620-122-940               | G3/8"              | G1/8"         | 2620-120-157               | 1/4 NPT            | Hydraulic oil | 70                  | Air           | 10                  |  |
|  | 2620-200-252                | 1/4 NPT                 | 2620-202-940               | G3/8"              | G1/8"         | 2620-200-157               | 1/4 NPT            | Coolant       | 70                  | Air           | 6                   |  |
|  | 2620-220-252                | 1/4 NPT                 | 2620-222-940               | G3/8"              | G1/8"         | 2620-220-157               | 1/4 NPT            | Coolant       | 70                  | Air           | 10                  |  |
|  | 2620-300-252                | 1/4 NPT                 | 2620-302-940               | G1/4"              | G1/4"         | 2620-300-157               | 1/4 NPT            | Air           | 6                   | Hydraulic oil | 40                  | Air seals require no external lubrication.                         |
|  | 2620-320-252                | 1/4 NPT                 | 2620-322-940               | G1/4"              | G1/4"         | 2620-320-157               | 1/4 NPT            | Air           | 10                  | Hydraulic oil | 40                  |  |
|  | 2620-400-252                | 1/4 NPT                 | 2620-402-940               | G1/4"              | G1/4"         | 2620-400-157               | 1/4 NPT            | Air           | 6                   | Coolant       | 40                  |  |
|  | 2620-420-252                | 1/4 NPT                 | 2620-422-940               | G1/4"              | G1/4"         | 2620-420-157               | 1/4 NPT            | Air           | 10                  | Coolant       | 40                  |  |
|  | 2620-500-252                | 1/4 NPT                 | 2620-502-940               | G3/8"              | G1/8"         | 2620-500-157               | 1/4 NPT            | Air           | 6                   | Air           | 6                   | Consult DEUBLIN regarding maximum speed.                           |
|  | 2620-520-252                | 1/4 NPT                 | 2620-522-940               | G3/8"              | G1/8"         | 2620-520-157               | 1/4 NPT            | Air           | 10                  | Air           | 10                  |  |

**This series includes additional models. For more information, contact *DEUBLIN* at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)**



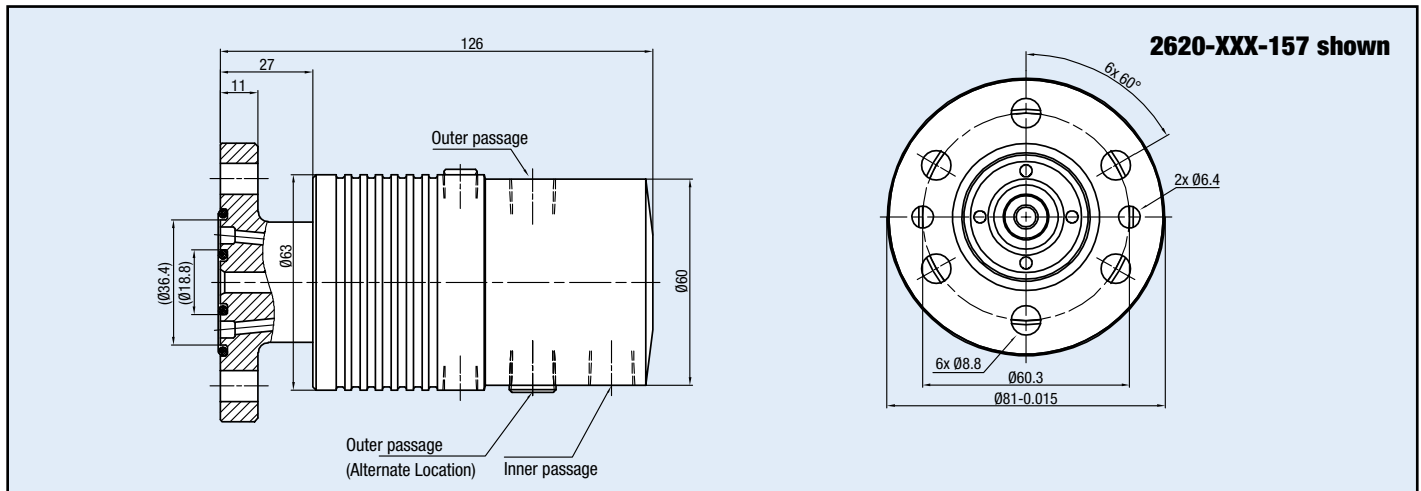
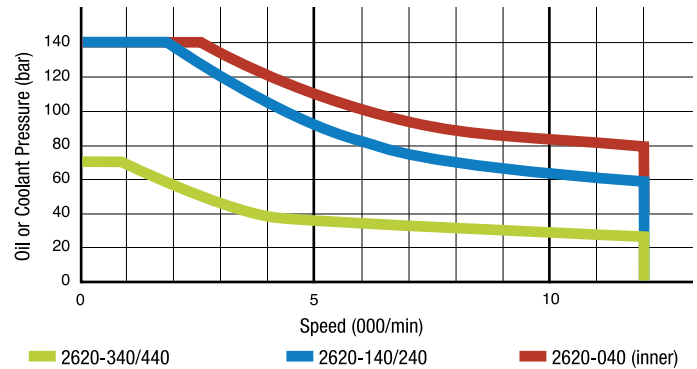
# DEUBLIN

## 2620 Series 2-Passage Rotating Unions for Various Media

- Two independent passages for applications such as clamping and unclamping, work piece sensing, and cooling
- Balanced mechanical seals for each passage provide long life and reduced torque even at maximum pressure
- Closed seals provide continuous containment of media
- Dual precision ball bearings for smooth operation
- Labyrinth protection for ball bearings
- Mountings options are compatible with *DEUBLIN* 2520 or 1579 series unions

### Operating Data

|                     |   |                        |
|---------------------|---|------------------------|
| Media               | See table                               |                        |
| Filtration          | ISO 4406 Class 17/15/12, max. 60 micron |                        |
| Maximum Speed       | 12,000 min <sup>-1</sup>                | 12,000 rpm             |
| Maximum Pressure    | See table                               |                        |
| Maximum Flow        | 69 l/min                                | 18.2 gpm (per passage) |
| Maximum Temperature | 71°C                                    | 160°F                  |



| With Ø 108 mm flanged rotor |   | With Ø 88 mm flanged rotor |   | With Ø 81 mm flanged rotor |   | Inner Passage |                     | Outer Passage |                     | Notes  |
|-----------------------------|---|----------------------------|---|----------------------------|---|---------------|---------------------|---------------|---------------------|--|
| Ordering Number             | Supply Connections<br>Inner and Outer Passage | Ordering Number            | Supply Connections<br>Inner Passage Outer Passage | Ordering Number            | Supply Connections<br>Inner and Outer Passage | Media         | Max. Pressure {bar} | Media         | Max. Pressure {bar} |  |
| 2620-040-252                | 1/4 NPT                                       | 2620-042-940               | G1/4" G1/4"                                       | 2620-040-157               | 1/4 NPT                                       | Hydraulic oil | 140                 | Hydraulic oil | 70                  |  |
| 2620-140-252                | 1/4 NPT                                       | 2620-142-940               | G3/8" G1/8"                                       | 2620-140-157               | 1/4 NPT                                       | Hydraulic oil | 140                 | Air           | 6                   | Air seals may be lubricated through oil cup or by using oiled air. |
| 2620-160-252                | 1/4 NPT                                       | 2620-162-940               | G3/8" G1/8"                                       | 2620-160-157               | 1/4 NPT                                       | Hydraulic oil | 140                 | Air           | 10                  |  |
| 2620-240-252                | 1/4 NPT                                       | 2620-242-940               | G3/8" G1/8"                                       | 2620-240-157               | 1/4 NPT                                       | Coolant       | 140                 | Air           | 6                   |  |
| 2620-260-252                | 1/4 NPT                                       | 2620-262-940               | G3/8" G1/8"                                       | 2620-260-157               | 1/4 NPT                                       | Coolant       | 140                 | Air           | 10                  |  |
| 2620-340-252                | 1/4 NPT                                       | 2620-342-940               | G1/4" G1/4"                                       | 2620-340-157               | 1/4 NPT                                       | Air           | 6                   | Hydraulic oil | 70                  | Air seals require no external lubrication.                         |
| 2620-360-252                | 1/4 NPT                                       | 2620-362-940               | G1/4" G1/4"                                       | 2620-360-157               | 1/4 NPT                                       | Air           | 10                  | Hydraulic oil | 70                  |  |
| 2620-440-252                | 1/4 NPT                                       | 2620-442-940               | G1/4" G1/4"                                       | 2620-440-157               | 1/4 NPT                                       | Air           | 6                   | Coolant       | 70                  |  |
| 2620-460-252                | 1/4 NPT                                       | 2620-462-940               | G1/4" G1/4"                                       | 2620-460-157               | 1/4 NPT                                       | Air           | 10                  | Coolant       | 70                  |  |

This series includes additional models. For more information, contact **DEUBLIN** at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)

**DEUBLIN**



## DEUBLIN

### 2630/2640 Series 3 to 5-Passage Rotating Unions for Various Media

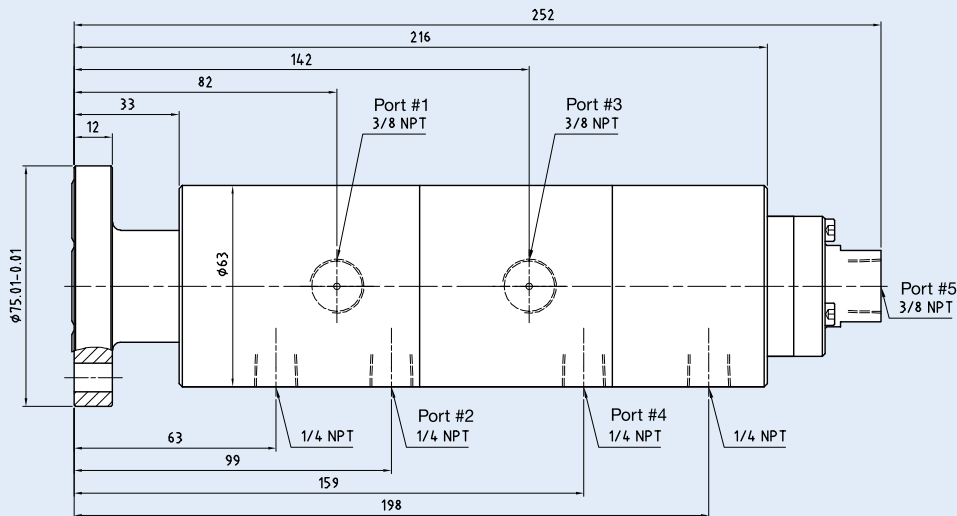
- Three to five independent passages for applications such as clamping and unclamping, work piece or tool sensing, and spindle cooling
- Balanced mechanical seals in all passages for low torque and long life even with high speeds and pressures
- Closed seals provide continuous containment of media
- No external lubrication of air seals is required
- Dual precision ball bearings for smooth operation
- Labyrinth protection for ball bearings

#### Operating Data

|                          |   |           |
|--------------------------|---|-----------|
| Media                    | See table                               |           |
| Filtration               | ISO 4406 Class 17/15/12, max. 60 micron |           |
| Maximum Speed            | 10,000 min <sup>-1</sup> 10,000 rpm     |           |
| Maximum Pressure         |   |           |
| Coolant or oil           | 140 bar                                 | 2,030 psi |
| Air                      | 10 bar                                  | 145 psi   |
| Maximum Flow Per Passage |   |           |
| 2630 Series              | 39 l/min                                | 10.2 gpm  |
| 2640 Series              | 17 l/min                                | 4.5 gpm   |
| 2650 Series              | 17 l/min                                | 4.5gpm    |
| Maximum Temperature      | 71°C                                    | 160°F     |



#### End View (2630-100-001 shown)



| Number of Passages | Ordering Number | Port #1                  | Port #2          | Port #3                  | Port #4          | Port #5                              |
|--------------------|-----------------|--------------------------|------------------|--------------------------|------------------|--------------------------------------|
| 3                  | 2630-000-001    | Hydraulic or Cooling Oil | Drain            | Water                    | Drain            | Coolant / MQL / Dry Air <sup>A</sup> |
|                    | 2630-100-001    | Hydraulic or Cooling Oil | Drain            | Hydraulic or Cooling Oil | Drain            | Coolant / MQL / Dry Air <sup>A</sup> |
|                    | 2630-200-001    | Hydraulic or Cooling Oil | Air <sup>B</sup> | Coolant                  | Drain            | NA                                   |
|                    | 2630-300-001    | NA                       | Air <sup>B</sup> | Coolant                  | Air <sup>B</sup> | NA                                   |
|                    | 2630-400-001    | NA                       | Air <sup>B</sup> | Coolant                  | Drain            | Coolant / MQL / Dry Air <sup>A</sup> |
| 4                  | 2640-000-001    | Hydraulic or Cooling Oil | Air <sup>B</sup> | Coolant                  | Drain            | Coolant / MQL / Dry Air <sup>A</sup> |
|                    | 2640-100-001    | Hydraulic or Cooling Oil | Air <sup>B</sup> | Hydraulic or Cooling Oil | Drain            | Coolant / MQL / Dry Air <sup>A</sup> |
| 5                  | 2650-000-001    | Hydraulic or Cooling Oil | Air <sup>B</sup> | Coolant                  | Air <sup>B</sup> | Hydraulic or Cooling Oil             |

**Note A:** This passage features AutoSense™ technology. With dry air, it operates with controlled leakage with MQL and coolant, it operates with closed seals.

**Note B:** This passage operates with closed seals, appropriate for tool or work piece sensing applications.

**This series includes additional models. For more information, contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)**



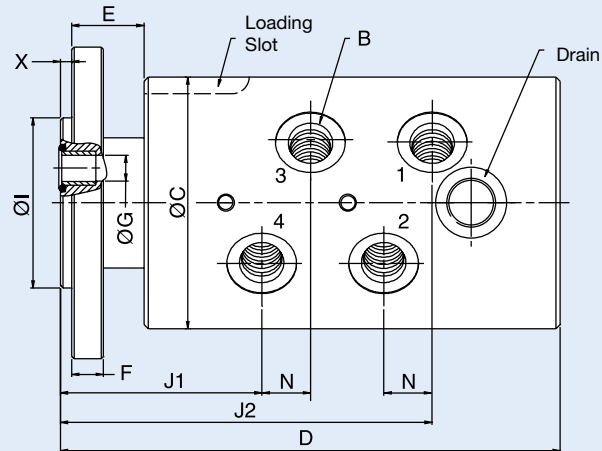
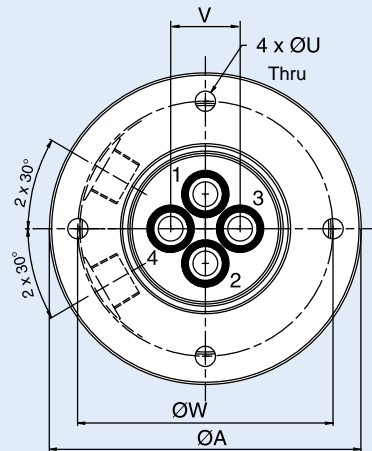
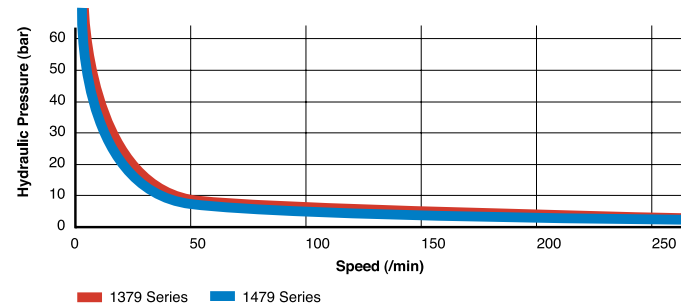
## DEUBLIN

### 1379 and 1479 Series 4-Passage Rotating Unions for Various Media

- Four independent passages for applications such as clamping and unclamping, work piece or tool sensing, and spindle cooling
- Vent between passages 2 and 3 allows use of two different media without cross contamination. For example, water in passages 1 and 2 and hydraulic oil in passages 3 and 4
- Stainless steel and brass components resist corrosion
- Hardened chrome sealing surface and elastomer-energized seals
- Dual, widely spaced ball bearings absorb large side loads

#### Operating Data

|                          |  |                                |
|--------------------------|--|--------------------------------|
| Media                    | Hydraulic oil<br>Air (dry or lubricated) |                                |
| Filtration               | ISO 4406 Class 17/15/12, max. 60 micron  |                                |
| Maximum Speed            | 250 min <sup>-1</sup>                    | 250 rpm                        |
| Maximum Pressure         |  |                                |
| Hydraulic oil            | 60 bar                                   | 870 psi (rotating)             |
| Air                      | 250 bar                                  | 3,625 psi (very slow rotation) |
|                          | 10 bar                                   | 145 psi                        |
| Maximum Flow Per Passage |  |                                |
| 1379 Series              | 53 l/min                                 | 14 gpm                         |
| 1479 Series              | 108 l/min                                | 28.5 gpm                       |
| Maximum Temperature      | 80°C                                     | 175°F                          |



|  | Ordering Number | B Supply Connection | A Flange Dia. | C Housing Dia. | D Overall Length | E Rotor Length | F Flange Thickness | G Bore Dia. | I Pilot Dia.     | J1 | J2  | N  | U   | V    | W B.C. Ø | X Pilot Length |
|--|-----------------|---------------------|---------------|----------------|------------------|----------------|--------------------|-------------|------------------|----|-----|----|-----|------|----------|----------------|
|  | 1379-460        | 3/8" NPT            | 110           | 89             | 176              | 25             | 10.5               | 9           | 60.000<br>59.981 | 72 | 142 | 17 | 7.2 | 24.5 | 90       | 4              |
|  | 1379-160        | G 3/8"              | 110           | 89             | 176              | 25             | 10.5               | 9           | 60.000<br>59.981 | 72 | 142 | 17 | 7.2 | 24.5 | 90       | 4              |
|  | 1479-400        | 1/2" NPT            | 130           | 108            | 202              | 25             | 13.5               | 13          | 75.000<br>74.981 | 81 | 169 | 23 | 9   | 29   | 110      | 4              |
|  | 1479-100        | G 1/2"              | 130           | 108            | 202              | 25             | 13.5               | 13          | 75.000<br>74.981 | 81 | 169 | 23 | 9   | 29   | 110      | 4              |

This series includes additional models. For more information, contact DEUBLIN at +1-847-689-8600 or [www.deublin.com](http://www.deublin.com)

## Special 2-Passage Rotating Unions for MQL Mixed in the Spindle

### 1112-100-101



#### Features

- Two concentric passages for mixing oil and air in the spindle
- Rotating inner passage for oil lance
- Compact housing is only 95 mm long and 45 mm diameter
- Threaded rotor for easy installation
- Full-flow design has no obstructions to trap chips or debris

#### Operating Data

|                     |   |            |
|---------------------|---|------------|
| Media               | Oil or Water (inner passage)<br>Air (outer passage) |            |
| Filtration          | ISO 4406 Class 17/15/12, max. 60 micron             |            |
| Maximum Speed       | 20,000 min <sup>-1</sup>                            | 20,000 rpm |
| Maximum Pressure    |   |            |
| Oil / Water         | 62 bar  | 900 psi    |
| Air                 | 10 bar  | 145 psi    |
| Maximum Flow        | 2.3 l/min   | 0.6 gpm    |
| Maximum Temperature | 71°C  | 160°F      |

### 1112-240-001



#### Features

- Two concentric passages for mixing oil and air in the spindle
- Rotating inner passage for oil lance
- Bore mounted design for easy installation
- Patented Pop-Off™ and AutoSense™ technologies allow unlimited dry running without media pressure

#### Operating Data

|                     |   |            |
|---------------------|---|------------|
| Media               | Oil or Coolant (Inner Passage)<br>Air (outer passage) |            |
| Filtration          | ISO 4406 Class 17/15/12, max. 60 micron               |            |
| Maximum Speed       | 30,000 min <sup>-1</sup>                              | 30,000 rpm |
| Maximum Pressure    |   |            |
| Oil / Coolant       | 140   | 2030 psi   |
| Air                 | 8 bar   | 116 psi    |
| Max. Flow           | 6 l/min   | 1.6 gpm    |
| Maximum Temperature | 71°C  | 160°F      |

### 1122-923-852



#### Features

- Two concentric passages for mixing oil and air in the spindle
- Non-rotating inner passage for oil lance
- Bearingless design

#### Operating Data

|                     |  |            |
|---------------------|--|------------|
| Media               | Oil (inner passage)<br>Air (outer passage) |            |
| Filtration          | ISO 4406 Class 17/15/12, max. 60 micron    |            |
| Maximum Speed       | 20,000 min <sup>-1</sup>                   | 20,000 rpm |
| Maximum Pressure    |  |            |
| Oil / Water         | 12 bar                                     | 174 psi    |
| Air                 | 8 bar                                      | 116 psi    |
| Maximum Flow        | 2.3 l/min                                  | 0.6 gpm    |
| Maximum Temperature | 71°C                                       | 160°F      |



# WARRANTY AND OTHER IMPORTANT INFORMATION

## Service and Support

Rotating unions are critical to the performance of your machining centers, so *DEUBLIN* products are designed for maximum reliability. *DEUBLIN* service is just as reliable. To provide you with local and emergency service, *DEUBLIN* has a worldwide service network of wholly-owned subsidiaries

and authorized distributors. Whether you need a spare part, new product, technical advice, or help with a design project, *DEUBLIN*'s experienced customer service representatives and application engineers are available to provide immediate assistance.

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## Warranty

For a period of one year from the date of shipment, *DEUBLIN* warrants that the products sold by it are free from defects in materials and workmanship. The liability of *DEUBLIN* is limited expressly to the replacement or rebuilding of any article, or part thereof, proven defective, when returned to the *DEUBLIN* Company, transportation prepaid, within a reasonable time after termination of the 365-day warranty period.

This warranty is void if the product is dismantled, modified, altered, or damaged from improper maintenance, side loading,

excessive temperature, abrasive or chemical action, or other abuse. No representative, agent, or employee of *DEUBLIN* has any authority to modify the terms of this warranty. *DEUBLIN* will not be responsible for any consequential or resulting damage which may be claimed to have occurred through the sale or use of such products or parts, thereof, which might be defective.

There are no warranties which extend beyond the description contained under this heading, express or implied, including warranties of fitness for a particular purpose.

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## Important Notice

The *DEUBLIN* Rotating Union is a precision-made piece of equipment and should be handled accordingly. It is a rotating sealing device – not just a plumbing union. Improper use or installation can result in premature leakage or failure. While *DEUBLIN* unions are of the highest quality and precision, they are “wear and tear” items. It is important that they are periodically inspected and, as the seals wear out, replaced or repaired to avoid the consequences of leakage.

*DEUBLIN* unions never should be used for applications other than as specified in the catalog. *DEUBLIN* unions should not be used to seal hydrocarbons or other flammable media as leakage may result in explosions or fires. The use of our product on hazardous or corrosive media is strictly forbidden.

For applications other than as stated in the catalog, contact *DEUBLIN*'s Engineering Department for recommendations.

These instructions are provided as general guidelines. They do not contain exhaustive information about the installation, use or maintenance of unions. Purchasers and users of *DEUBLIN* unions should be certain that they have reviewed *DEUBLIN*'s catalog and have sufficient experience and training in the use of unions before attempting installation or use of *DEUBLIN* products. The principal responsibility for the safe and effective use of *DEUBLIN* unions rests with the user and its employees. *DEUBLIN* will provide, upon request, whatever assistance it can to advise users about the use of its products and about any difficulties or problems which are brought to its attention.

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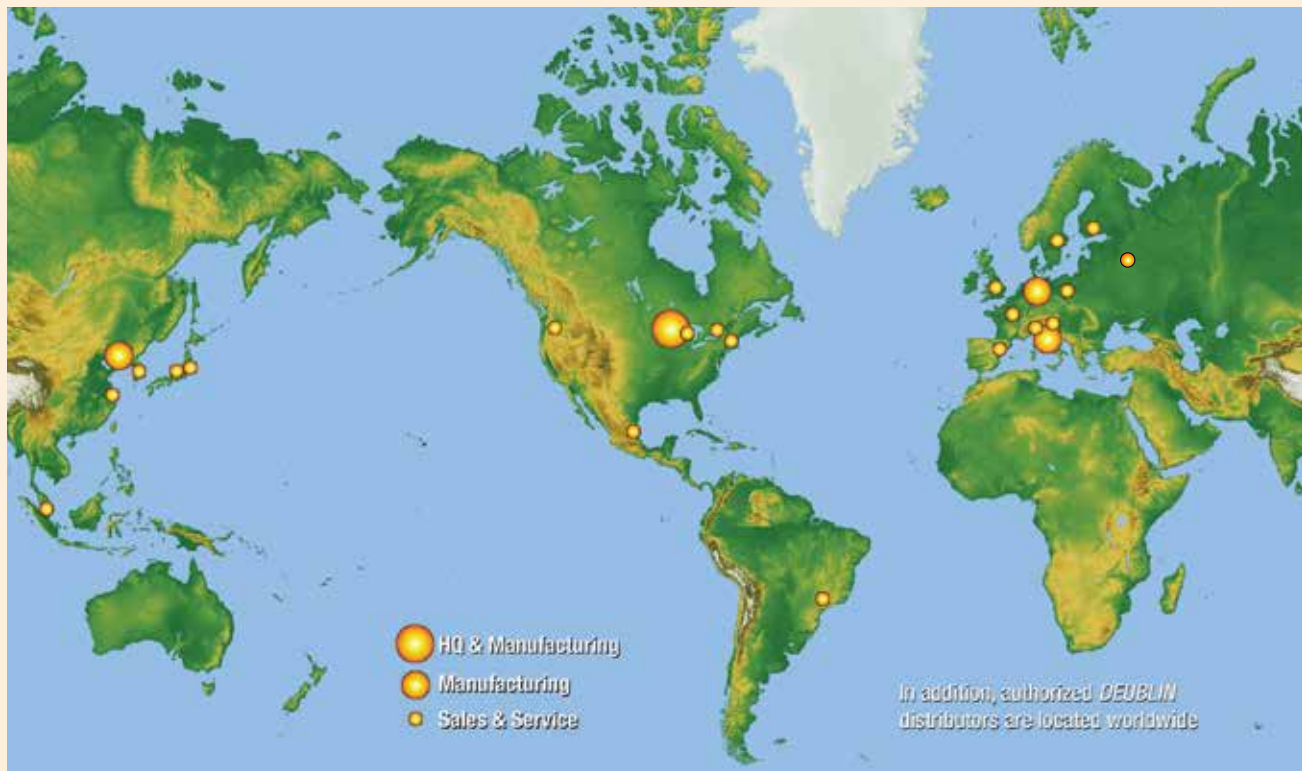
## Factory Testing

All *DEUBLIN* Rotating Unions are factory-tested under pressure prior to shipment. This thorough check ensures that each *DEUBLIN* union performs as intended. *DEUBLIN* Rotating Unions can be installed with the confidence that they will operate to your complete satisfaction.

## GETTING TECHNICAL OR DESIGN ASSISTANCE FROM *DEUBLIN*

Since 1945, *DEUBLIN* has grown from a small garage shop to the world's largest manufacturer of rotating unions. Today, *DEUBLIN*'s international headquarters is located in Waukegan, Illinois, with manufacturing facilities and sales offices located in 17 countries on four continents. *DEUBLIN*'s state-of-the-art manufacturing facilities feature the latest technologies, including multi-axis CNC, robotics, single point threading, and cylindrical grinding.

Advanced machining techniques and proprietary processes allow *DEUBLIN* to achieve the most precise tolerances in the industry and to ensure superior performance and union life. Our worldwide distribution network allows machine operators all over the world to specify *DEUBLIN* unions when purchasing equipment made in another country. We are manufacturers ourselves, so we understand the importance of fast response time to keep your manufacturing process rolling. Wherever you are located, *DEUBLIN* has a stocking distributor nearby to meet your requirements – quickly.



*DEUBLIN* Unions making *DEUBLIN* Unions

# ORDERING CHECK LIST

Because rotating unions must accommodate a broad range of speeds, pressures, and media, the *DEUBLIN* product line includes thousands of standard models. But sometimes even this extensive selection may not meet your specialized needs. That's why we manufacture an ever-growing line of custom unions to meet the particular requirements of world-leading manufacturers. In many situations, we can adapt an existing union design in order to offer a cost-effective solution that meets your exact specifications.

When you contact us, we will ask a number of questions to make sure that we completely understand your application. These questions may include:



*DEUBLIN* 2-passage Unions on CNC Turning Center

|                             |   |  |  |
|-----------------------------|---|--|--|
| <b>Machine Type</b>         | <input type="checkbox"/> CNC Machining Center <input type="checkbox"/> Gun Drilling <input type="checkbox"/> Transfer Line or Flex Line<br><input type="checkbox"/> Turning Machine <input type="checkbox"/> Grinding <input type="checkbox"/> Multiple Spindle Head<br><input type="checkbox"/> Other _____        |  |  |
| <b>Orientation</b>          | <input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical <input type="checkbox"/> Multi-axis: Vertical + _____ ° and – _____ °   |  |  |
| <b>Union Location</b>       | <input type="checkbox"/> Spindle <input type="checkbox"/> Motor Spindle <input type="checkbox"/> Indexing Table or Pallet <input type="checkbox"/> Other: _____   |  |  |
| <b>Available Space</b>      | Maximum overall length = _____ mm      Maximum diameter = _____ mm<br>(Please attach drawings or photographs of the area where the union will be installed.)  |  |  |
| <b>Mounting</b>             | Bearing-supported: <input type="checkbox"/> Rotor-mounted <input type="checkbox"/> Bore-mounted<br>Bearingless: <input type="checkbox"/> Outboard mounting <input type="checkbox"/> Inboard mounting<br><input type="checkbox"/> Around the shaft (shaft diameter = _____ mm) <input type="checkbox"/> Other: _____ |  |  |
| <b>Rotor Style</b>          | <input type="checkbox"/> Threaded (pitch and diameter = _____)<br><input type="checkbox"/> Flanged (diameter = _____) <input type="checkbox"/> Other: _____   |  |  |
| <b>Media</b>                | <input type="checkbox"/> Water-based coolant <input type="checkbox"/> Cutting oil <input type="checkbox"/> Hydraulic oil<br><input type="checkbox"/> Air-oil mist <input type="checkbox"/> Lubricated air <input type="checkbox"/> Dry air<br><input type="checkbox"/> Other: _____                                 |  |  |
| <b>Operating Conditions</b> | <input type="checkbox"/> Maximum pressure _____ bar (when rotating) _____ bar (when stopped)<br><input type="checkbox"/> Maximum speed _____ rpm<br><input type="checkbox"/> Maximum flow _____ liters per minute<br><input type="checkbox"/> Maximum temperature _____ °C  |  |  |

**The better we understand your requirements,  
the faster and more accurately we can respond.**





Since its establishment in 1945, **DEUBLIN** has consistently adhered to a policy of producing the best product of its kind in the market. The result of this policy has been constant growth through the years. For this progress we are grateful to our many loyal customers. We cordially invite you to visit our modern manufacturing facilities in Waukegan, Illinois; Hofheim a. Ts., Germany; Monteveglio, Italy; and Dalian, China.

Sincerely,

Donald L. Deubler  
Chairman of the Board



Global Headquarters in Waukegan, Illinois, U.S.A.



Hofheim a. Ts., Germany



Monteveglio, Italy



Dalian, China



**DEUBLIN products & services are available throughout the world.**

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